Telephony

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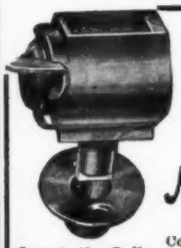

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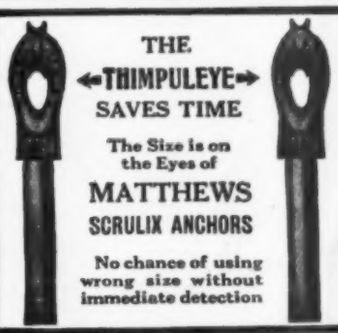

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Telephony.

THE AMERICAN TELEPHONE JOURNAL

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CURRENT OPINIONS AND COMMENTS

It has been nearly 18 months since Independent telephone men met in a national convention. This year they convene in a month never before selected for their meeting—November, now known in the calendar as Armistice Month, for three years ago, on the 11th day, the great war officially came to an end.

When the United States Independent Telephone Association meets in Chicago, just ten days hence, much water will have gone over the wheel since the Winona Lake meeting, marking material changes in the conditions of many companies. The days since June, 1920, have not brought particularly sunny weather for anybody, for general business has suffered a depression that naturally followed the period of abnormally high prices which began during the war and prevailed a year and a half as its aftermath.

* * * *

Speaking generally, however, telephone companies have not been injured as much by the dull times as have most other lines, which may be accounted for by two reasons:

One is that business fluctuations do not affect the telephone industry so directly because people need service at all times. It is a necessity. In fact, the telephone helps many to reduce expenses when hard times make retrenchment essential.

The other reason is that telephone operating companies did not share in the inflated prices that profited others during the boom, and there was no occasion, therefore, for them to experience the sharp reaction that hurt general business.

You don't miss what you never had. There has been no profiteering in the telephone business, hence, little participation in the losses endured by those who got the big money in recent years.

* * * *

Since the 1920 convention much has been done to adjust telephone rates and place them on a higher basis where they belong. Success in this direction shows that rate-making commissions are beginning to appreciate the situation and realize that good service for the public depends on adequate compensation for the companies.

The fact remains, however, that the task of educating the public on this point is not completed—really scarcely begun—and that the national association must give more attention to this vital subject if it is to do its full duty to the companies in the field.

* * * *

An effort is being made to have as many rate commissions as possible represented at the convention by the engineers and experts who hande their telephone rate cases.

This is a move in the right direction, for the better the telephone operators and the rate-makers get acquainted with each other and their respective problems, the more readily will both sides understand what must be done to improve the public utility situation. It will do them both good to meet and exchange ideas away from the formal sessions of rate hearings. Most persons fraternize better when they meet "off the job."

The rate-makers can learn much at the convention and carry home with them "close-up" snapshots of the men who run telephone exchanges and furnish the service that they (the commissions) are empowered to regulate. What is equally important, the telephone men can acquire a great deal of useful information from the spokesmen of the commissions if this feature of the convention is managed right.

Any commission, no doubt, can tell an exchange manager how he can handle his plant so it will receive more favorable consideration from the rate-fixing authorities, and, as Well Clay (himself a manager) admits in his article on another page of this issue, most of them need to learn considerable on this subject. This exchange of ideas should result in more satisfactory progress when commissions and companies meet in rate hearings in the future.

* * * *

Interest is always keen in the all-important question of rates, and especially so right now in what the Chicago convention will do regarding certain phases of the subject.

One of these points is the suggestion of securing uniform rates for exchanges of the same size, which President MacKinnon has frequently discussed before state conventions. The idea is based on the

fact that with many smaller companies the level of operating expenses is more uniform than the level of rates, and that consequently there should be more uniformity in the rates received by plants of approximately the same size.

* * * *

That there will be some objection to this proposition, unless carefully safeguarded, is evident from expressions from the field. A Kansas telephone man, in a letter to TELEPHONY, says:

"Because of this proposal, and also because the smaller companies have not been able to get anywhere—largely on account of politics—the Kansas association adopted a resolution, a copy of which was sent to the Industrial Court and the governor, advocating that the matter be studied with a possibility of setting up more or less uniform rates for plants of like size, on the ground that operating expenses were uniform and existing rates were far from uniform.

"I think this was intended more to get some sort of a rise out of the commission rather than to set up a new theory. The commission has taken the matter up, however, and recently, in a newspaper statement, one of the members of the commission said that body was going to give careful study and consideration to the making of uniform telephone rates for plants of like size, particularly as pertaining to the smaller companies.

"Of course, if this thing is followed out, the question of the value of the property, used and useful, will not be the factor that it is supposed to be in establishing rates. Utilities' laws generally say that the owners are entitled to a fair and reasonable return based on the value of the property, but I do not know of any case in recent years where any commission has based rates on the value of the property—at least around these parts.

"Of course, any general plan of uniformity in rates will meet with considerable hostility as the Kansas commission, and probably other utility bodies, will take some very low basis and try to whittle all others down to it."

* * * *

Of course, the writer of the letter does not literally mean that no commission has based rate adjustments on the value of the property, for that idea is the fundamental principle of practically all utility laws. What he does mean, probably, is that plant valuation is seldom made high enough to do the company justice. That is, the *full* value of the property is not allowed, and the rates authorized do not yield a fair return on the money invested.

Being under the jurisdiction of the Kansas commission and acquainted with its policy, the writer is undoubtedly justified in the rather gloomy view he takes of the situation. for the record indicates that the Kansas rate-fixers would rather pinch down on a public service corporation any day than give it a square deal.

* * * *

Many experienced telephone men are said to be in favor of sticking to the plan of basing rates on the full value of the property rather than run the risk of having a standard adopted which might work injustice in some cases. They prefer to have each case decided on its individual merits. This would afford an opportunity to reward efficient and economical management of telephone properties.

Program for National Convention

Plans for Great Meeting of Independent Telephone Men Are Practically Complete—Exhibitors Who Will Show All the Latest in Equipment and Supplies—Poineers Preparing Live Program for Their First Convention

As the time for the convention of the United States Independent Telephone Association approaches, final arrangements are being concluded and all indications point to an excellent convention.

This year the meeting will be held at Hotel Sherman, Chicago, November 15, 16, 17 and 18. The program on the opposite page indicates that there will be many discussions by men qualified to speak authoritatively upon problems which are especially important at the present time. Undoubtedly, many angles to questions of rate-making, interference by electric light and power lines with telephone traffic, and depreciation will be threshed out.

On other pages of this issue are articles which discuss matters that will be considered either officially or in the various unofficial gatherings during the convention.

One of the features of the convention will be the general reunion of the veterans of Independent telephony. It will be the first meeting of the Independent Pioneer Telephone Association of the United States, the organization of which was begun at the Winona Lake convention.

Invitations have been sent out to all of the past presidents of the national association inviting them to attend the luncheon and to make a short talk afterward. In addition to these past presidents, several other veterans of Independent telephony will relate, briefly, their early experiences.

The entertainment committee for the Pioneers' meeting, consisting of W. S. Vivian, H. D. Currier, George W. Rodormer and F. L. Eldridge, is hard at work on a snappy program, the exact nature of which they refuse to divulge, declaring that it will be a "surprise." Manufacturers are co-operating to make the affair a great success.

J. K. Johnston, of Indianapolis, Ind., secretary of the Pioneers' association, has arranged for a wireless telephone set which will be in operation during the meeting.

All Pioneers and their friends are invited to this luncheon and meeting of the Independent Pioneer Telephone Association of the United States, and a general good time is assured by the "live" committee on arrangements. This year the meeting is to be exclusively a "men's affair."

The exhibits at the convention will be many and varied for, in addition to organizations which have had exhibits at previous conventions, there are a number of new ones. All exhibit space has been taken and the exhibitors are as follows:

Acme Card System, Addressograph Co., American Electric Co., Automatic Electric Co., Bell Lumber Co., Lynton T. Block & Co., Bowdle Accounting System, Chance Co., Coffey System & Audit Co., Cook Electric Co., Dawson Mfg. Co., Electric Storage Battery Co., Franco Electric Co., French Battery & Carbon Co., Hallett Iron Works, Holtzer-Cabot Electric Co., Kellogg Switchboard & Supply Co., J. K. Johnston, Leich Electric Co., Lyon Metallic Mfg. Co., McLeod Electric Supply Co., Monarch Telephone Mfg. Co., National Carbon Co., National Pipe & Cable Hanger Co., Naugle Pole & Tie Co., Page & Hill Co., Reliable Electric Co., John A. Roebling's Sons Co., Standard Underground Cable Co., Steward Bros., Stromberg-Carlson Telephone Mfg. Co., Thompson-Levering Co., TELEPHONY PUBLISHING CORP., and Templeton-Kenly & Co.

The names and products of practically all these exhibitors are familiar to TELEPHONY'S readers. Since the meeting at Winona Lake a year and a half ago, they have developed new ideas and have incorporated them into their products—and every telephone man will be supplied with all kinds of information by those in attendance at the exhibits.

NATIONAL CONVENTION PROGRAM

CHICAGO, NOVEMBER 15-18

Tuesday, November 15, 10 A. M.

Directors' Meeting.

Tuesday, 2:30 P. M.

Opening Session of Convention—

Opening Address
Response
Secretary-Treasurer's Report
President's Annual Address, F. B. MacKinnon
Jubilee Address, "1897-1921," H. D. Critchfield, Chicago
Business Session.

Wednesday, November 16, 10 A. M.

"Classification of Exchanges for Rate Making"
Report of Study, Prof. C. A. Wright, Columbus, Ohio
Discussion, Wm. W. Potter, chairman, Michigan Public Utilities Commission, Lansing, Mich.
"Why State Commissions Are Unpopular," Noah W. Simpson, Missouri Public Service Commission, Jefferson City, Mo.

Wednesday, 1:30 P. M.

Luncheon and Meeting of State Association Officials

Thursday, November 17, 10 A. M.

"Interference with Telephone Traffic by Electric Light and Power Lines"
"The Telephone Company's Viewpoint," S. P. Grace, New York, Engineer on Foreign Wire Relations, American Telephone & Telegraph Co.
"The Power Company's Viewpoint," W. J. Canada, Electrical Engineer, National Electric Light Association
General Discussion

Thursday, 1:30 P. M.

Luncheon and Meeting of Independent Pioneer Telephone Association of the United States, General Reunion of Veterans

Friday, November 18, 10 A. M.

"Problems in Determining a Depreciation Procedure for Telephone Companies," Frank S. Fowler, Washington, D. C., Chief, Depreciation Section, Bureau of Accounts, Interstate Commerce Commission.
The Depreciation Statement Filed with the Interstate Commerce Commission by the United States Independent Telephone Association—
C. B. Randall, St. Paul, Minn., Secretary, The Tri-State Telephone & Telegraph Co.
H. L. Harris, Kansas City, Mo., Vice-President, Kansas City Telephone Co.
Discussion
Adjournment

What's Your Physical Appearance?

Differences in Our Physical Makeups Which Influence Us as to Kind of Work We Like—Classify Yourself Physically!—Are You of the Motive, Mental or Vital Type?—Last, but Not Least, Are You the Man for Your Job?

By S. R. Edwards and Dr. J. M. Fitzgerald

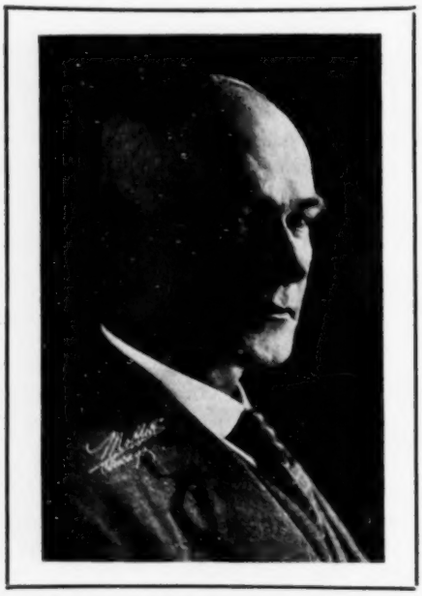
Did you ever try to describe a person; for instance, a subscriber who came in with a complaint? How did you do it? Undoubtedly something like this:

"He was short, light complexioned, about 40 years old, rather heavily-built and wore a dark suit of clothes and a derby hat."

That's about all the description the majority of people would give—but there are many persons who would answer that description.

There are many differences in our physical makeups—which are quickly observed when one considers them—and they have to some extent an influence on the kind of work we can do best. For instance, the typical bookkeeper, clerk, or operator is not a tall person—nor do we find fat men among the linemen.

Suppose we try to classify ourselves physically, what steps would we take? We would consider the height, whether tall, short or in between. Weight would came next as compared with the height. There are tables published which give average weights for the various heights—few of us, however, weigh up to these



"Motive" Type With Strong Mental Inclination—A Good Type for Engineering.

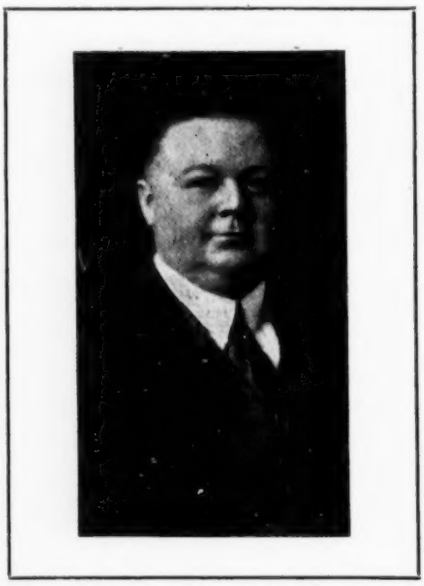
averages. But a person is slender, medium, heavily-built, stout, or fat—and these conditions tell us something of the person, his habits, and inclination.

A man may be big-boned or small-boned, loose-jointed, or heavily-muscled, with flabby flesh or firm flesh. He may be of coarse texture of skin, hair and flesh, or of fine texture. He may be dark complexioned or of a light color.

Thus it is seen that there are many physical differences between us—and naturally our physical tendencies must be considered in the selection of the work we are doing.

Do you remember the pictures of the old explorers and pioneers—Columbus, Balboa, Hudson, Daniel Boone, Buffalo Bill? They were tall, big-boned men—the out-of-door type, keen for adventures and action. The old forty-niners and those of more recent times who joined in the rush to the gold fields of the Klondike in 1896, were of the same type.

These pioneers, as civilization proceeded, became ranchers, farmers and inhab-

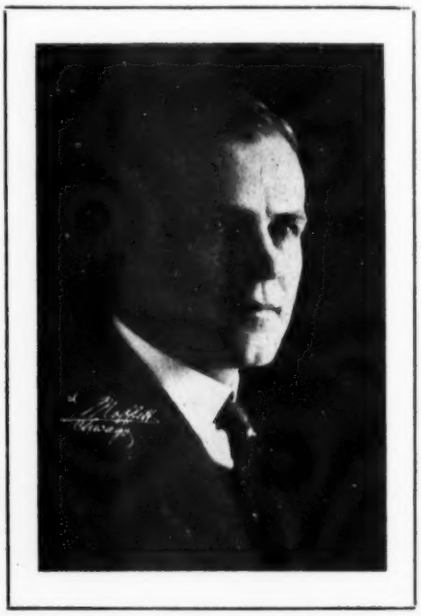


"Vital" Type Is Characterized by Mental Facility, Versatility and Imagination.

itants of the country districts. Their descendants went into the cities and, as time went on, their physical characteristics changed.

In the eastern part of the United States—the earliest settled—we find few of the tall, big-boned type of men. The type has changed from the out-of-door man to the man of smaller frame and the man of weight. In other words, civilization has changed men from the kind who enjoyed hardships and adventure to the type that like comfort and luxuries of different kinds.

Just notice the men in your community. A man who has lived in the country all his life is easily distinguished from the man who is from the city, by his mien and his manner rather than by his coat of tan or his clothing. But let the country boy spend ten years in the city and observe how he changes. While he may be tall and lank of frame, city life usu-



"Mental" Type Tends Toward Occupations Requiring Study and Thought.

ally takes away the awkwardness and flesh fills out his frame as the years go by.

The more we observe the physical appearances of men, the more quickly do we pick out differences between them. As we observe, we come to the conclusion that there are really types into which men may be generally classified. A careful study will indicate three general classes, which are now commonly known as the *motive*, the *mental* and the *vital*.

The pure *motive* type is the adventurer or pioneer, the large-boned, muscular type. He is tall, broad-shouldered, his bones are long, his muscles strong and hard, and his voice heavy and strong. He has strength, tenacity and endurance of muscular power. His features are, in general, rugged and prominent, particularly the cheek bones and nose, while the expression of his face is strong, earnest and determined. He is distinguished for his force of character, industry, courage and executive ability.

He is an active type of man—wants to be on the go all the time. Action is his watchward, and, therefore, he is a leader

in active life. He is an observing kind of a thinker. He is the type who carries through the plans of others, through his force, energy and determination.

This type of man if not properly brought up as a boy is inclined to be arrogant and domineering. Love of power and control leads him sometimes to excessive effort and ruin. Of such a type was the ex-kaiser of Germany. His love of power and control were entirely out of proportion to his reasoning powers.

Men of the motive temperament by choice engage in hard and laborious pursuits. They like to lift and carry burdens, wield heavy tools and implements and enjoy striking heavy blows.

The *mental* type of man in physique is comparatively slender and the head is large in proportion to the size of the body. The muscles are small and compact and adapted to rapid action rather than to strength. Their figures are delicate, elegant and graceful, but seldom strong or commanding. Persons of this type are the thinkers, and their natural tendency is toward pursuits which employ the mind rather than the body. It is the literary, artistic, and poetic temperament. They are always fond of reading and study.

The third distinct type is known as the *vital* or fleshy man. In this type the bones and muscles are not as strongly developed as in the motive type, while the breadth of the body is generally greater. The neck is comparatively short and thick and the shoulders broad and round. The chest is broad and deep, the limbs well rounded, the hands plump and thick and the body a well-nourished appearance generally.

This type of men are fond of good living, play and sports which involve no physical exertion on their part. They are characterized by mental facility and versatility, having a ready perception and active imagination, and usually they express themselves with quickness and brilliancy. They are distinguished for elasticity rather than firmness and are usually quite broad-minded. We do not find the vital type among the fighters.

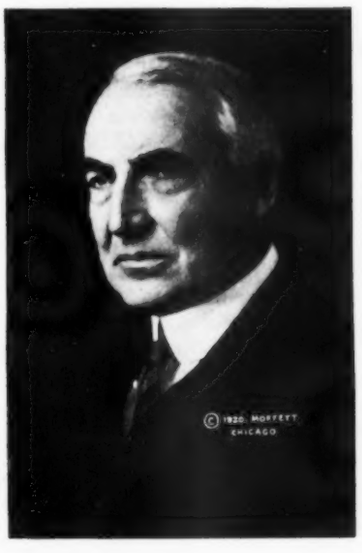
The brain is the seat of all our activities, either physical or mental. The man who is physically active has an entirely different-shaped head from the man who is mentally active, or from the person who is noted for his food-consuming and social abilities.

In the motive type of man, there is a fairly well-defined ridge across the forehead, just above or behind the eyebrows. The forehead is sloping and the highest part of the head is at the crown, just back of a line drawn perpendicular through the opening of the ears. His head is also broad, measured between points just above the ears.

The mental type has an oval-shaped head, with a high, straight forehead, which is usually broadest in the upper part. The face is pear form or triangular with the narrow point at the chin. The skin is thin, sensitive, and fine-grained. The hair is fine and thin, seldom thick.

The head and face of the vital type correspond with the other parts of the body, which are well-filled out with adipose tissue. The head is round and developed at the base. There is a rapid widening of the head from the outside corners of the eyes to the tips of the ears. The side head is spherical and well-filled out. The forehead is generally full or square and broad rather than high. The expression on the face is usually lively, frank and good-natured.

Of course, there are many combinations of these types. In fact, the extreme of any one type is rare although one temperament or another usually predominates. In the telephone industry we find all three types and their variations, for it is a many-sided business. In the construction and plant end we find many of the motive and motive-vital types and in some of the engineering branches where



"The Balanced Temperament" Furnishes the Best Type of Executives.

are also found a combination of the motive and mental types.

In the commercial end, we find a combination of the vital and the mental, and in the executive end a combination of the motive, mental and vital.

The very best type of executive, however, is the one who has the three type characteristics in about equal proportion, or what is termed "the balance temperament."

The mental types and those types in which the mental predominates, such as the mental-vital, are found in the offices and wherever literary or clerical work or any work requiring mental activity is to be performed. They are the men who like to plan and think things through.

Observe men who occupy responsible positions or who are making good in business. How do you classify them as to physical appearances? Note the prominent parts of their heads and faces and classify their actions. Then how about yourself?

There is much that can be learned about people and about ourselves by observation as has been outlined and study of actions, physical and mental—think it over; think it through.

Reservoirs Give Their Water Levels Over the Telephone.

At the International Shipping, Engineering and Machinery Exhibition held in London, England, in October, a rather unique use of the telephone was explained, according to the Philadelphia Public Ledger. It was the ascertaining of the level of water in a reservoir some ten miles out of town over a telephone line.

The device which does its own telephoning is known as the "audible water level recorder," and is designed for use in isolated reservoirs where a close watch must be kept upon the level of the water. Irrigation reserves are especially mentioned, but it can be applied to boilers, standpipes and similar containers as well.

Telephone communication is gained by assigning the mechanism a regular telephone number on a city exchange. When the number is rung, the machine is set in motion, and by means of a phonograph disk it speaks clearly into the receiver: "Four and a half," "Ten feet" or "Empty," just as the case may be. The needle arm is moved to the right spot on the disk by means of boats on the surface of the water.

Still another ultra modern telephonic invention exhibited was the laryngophone, which carries, not the sound of the voice, but the vibrations of the larynx. Shout at it as you will, not a sound can be heard at the other end of the wire, but press the "transmitter" against the side of your throat and your voice is reproduced perfectly at the end of the line.

The laryngophone is designed for use in factories or shops where there is a great clatter for, no matter what the noise near the instrument, nothing except the vibrations of the larynx are transmitted.

Ohio Bell Telephone Co. to Issue $5,000,000 Bonds.

J. P. Morgan & Co., according to newspaper reports, will offer shortly a block of somewhat less than $5,000,000 of Ohio Bell Telephone Co. bonds to complete a refunding operation.

On December 1, approximately $4,800,000 bonds of a small subsidiary company of the Ohio State Telephone Co. will become due and the Bell company, through the new refunding issue, will take care of the contract.

Discourtesy vs. Real Understanding

The Writer of This Article Wonders if "Go to Hell, Hayseed," Is Not Very Often the Attitude of Owners, Managers and Employes of Utilities as Well as of the Public—He Gives Some Advice on Securing a Better Understanding

By W. S. Vivian

Manager Department of Public Relations, Automatic Electric Co.

A man of wealth, owner of telephone securities, and a larger use of telephone service walked into the general manager's office recently, waving the rental statement he had just received, and very excitedly said: "This raising rates is all a mistake. I simply cannot afford to pay so much for my telephone service. It is costing me too much. Everything is coming down, cost of labor and materials, and why should your company have to increase rates at this time? I simply can't afford it, and won't pay it."

The general manager was quite surprised because the facts were that nearly two years had elapsed since there had been any increase in the rates.

In the morning paper there had appeared an announcement that the state public service commission had authorized an increase in rates in a number of exchanges in that part of the state, but the particular city in which this excited business man subscriber resided was not included.

The general manager, realizing something of his visitor's mistake, said: "I don't know what you are talking about." His visitor, more excitedly than ever, exclaimed, "I am talking about your increase in rates!"

As the visitor got more excited, the general manager became calmer, if possible, and said, "We haven't increased any rates here."

"You have, too," shouted the visitor. "I read all about it in the morning paper."

"You're mistaken," replied the general manager, "the rates that have been authorized by the commission do not apply to this exchange. Let me see your bill."

"You Have, Too," Shouted the Visitor, "I Read All About it in the Morning Papers."

The man promptly handed over the telephone bill for rentals. The general manager said, "Is this the rate you object to?"

"Yes," replied the subscriber.

"Well," said the general manager, "this bill does not show any increase in rates. This is the same rate that you have been paying since August, 1919."

"What?"

"This is the same rate you have been paying since August, 1919," repeated the general manager. Then the subscriber laughed, patted the general manager on the shoulder and said: "Is that so? That's all right, then, good morning." And smiling pleasantly, he walked out of the office.

There is a lesson in this incident for public utility men. The fact is that the average American citizen objects to an increase in rates not as to the amount but on the general principle that he does not want to pay any more for his service than he is obliged to, or than he is now paying. This was substantiated at the recent Indiana convention when Farmer Brown, president of the Indiana Federation of Farmer's Association, in his address, stated that *his relation to the telephone business had always been that of objecting to increase in rates and finding fault with the service.*

Mr. Brown said that when a telephone company increased rates while everything else was coming down, it looked mighty unreasonable to the farmer, because the *farmers assumed that the telephone companies had been successful financially, and, so far as they could see, the future of the telephone company looked bright and prosperous.* "What we need to do," he said, *"Is to get better acquainted,* through our organizations."

Each of the foregoing incidents give us something that is worth thinking about. The average citizen is willing to pay what is fair and right, whether he be a business man of the city or town, or a farmer. But too often in their experience they have taken somebody's word as regards price on a given commodity, only to find later that they have paid a price that was not reasonable or fair.

I talked with a business man the other day, who, knowing that I was interested in the telephone business, said: "Why, just think, we pay $96 a year for a telephone. Just think of it!"

"Is that too much for your service?"

"Why, sure it is. We should be able to get it for $2 to $3."

Then I asked him: "What makes you think you should get it for $2 or $3?"

"Because," he answered, "in some sections of the country, groups of farmers have telephone service that only costs them $2 or $3 or $4 a year."

My friend, however, did not know that what we had in mind had long since passed. Neither did he know that each one of the farmers put up the money for the telephone in his house, for the inside wiring, for the line wiring, and for the drop wiring; or that he went out into the woods along with his neighbors and cut native poles, and that they went out and with their own teams hauled the poles, distributing them along the highway; that they dug the post holes and set them with their own hands, performing all the labor without any remuneration whatsoever; that they usually connected their lines to a switchboard in a nearby town or city and paid the operating telephone company a nominal switching charge of $3 or $4 a year to switch their calls to and from the roadway company, to the subscribers in the city or town; or that these farmers were now paying from $6 to $7.50 for switching service.

Neither did he know that when there was a case of trouble, Mr. Farmer had to "shoot" his own trouble. In contrast to that, neither did he know of the complexities arising in the engineering and building of a large multi-office city exchange with its intricate inter-office trunking arrangements, its costly underground and aerial system, or the complex central office equipment necessary to handle the exacting traffic of a modern city.

He failed to realize that the group of farmers, which he had in mind, was no more in the telephone business, than the postal department of the federal government is in the utility business.

Sometimes some of our friends say that the experience this country had in the governmental operation of our railroads and wire systems during the war period has forever killed the idea of government ownership of public utilities in this country. That conclusion is, I believe, a mistake. There are many, who, because of their lack of correct and ample information, believe that the utilities are charging altogether too much money for the commodity they are selling, and they believe

whether right or wrong, that there are possibilities of relief in government ownership.

It is hardly necessary to point out that all who believe in the principles of Socialism—and there are many thousands of such in this country—believe in government ownership of all utilities, and they are gaining new converts to their doctrines every day.

Those of us who are in the utility business know that such conclusions are wrong, but our knowing that is not going to help the situation, unless we change the situation. And the only way it can be changed is to go to the public in every possible way by taking advantage of every opportunity, and tell them the truth regarding the utility in non-technical, understandable language, and in an interesting, convincing manner.

Farmer Brown related an incident in his address at Indianapolis that illustrates the attitude which too often prevails fairly well. He told of the beginning of organizations among farmers in the early days. At that time there was a farmer's organization in a certain community, which met in a certain hall in town on every alternate Tuesday evening. The business men of the town had a commercial club and they also met every alternate Tuesday evening. Each organization was run as a secret organization.

On an occasion, one of the members of the farmer's organization, by the name of Jones, went up to attend the meeting; he went to the door of the anti room and rapped on the door. A voice from within said: "Who's there?"

Farmer Jones repeated the password of his organization, which was "We plow, we sow, we reap."

The voice from within said: "What's that?"

He repeated, "We plow, we sow, we reap."

There was a moment's silence, when the voice within said: "Go to hell, hayseed."

Farmer Jones was quite surprised and perplexed. He walked downstairs and a few door away met a neighbor. He said: "Neighbor, isn't this the night of our meeting?"

"No," replied the neighbor, "the Commercial Men's Association meets tonight."

Then Jones related to his neighbor his experience. "Why, Jones, what have you done?" asked the neighbor. "Have you given away our password?"

Jones replied in some embarrassment: "I had not thought of it before, but that's just what I have done." Then he brightened up as another thought came to him, and said, "But, at any rate I got theirs."

I wonder if "Go to hell, hayseed," is not too often the attitude of the owners, operating managers and employes of utilities as well as the general public. They fail to understand each other, and instead of making a conscientious, persistent effort to correct the misunderstanding, they simply say: "Go to hell, hayseed."

There is another phase to this subject. We are all familiar with the cry of home rule that has been raised during the past two or three years and we know that the politician has been advocating home rule so that all of our public utility commissions would be done away with, and the utilities would have to go to the common council and city authorities in all matters pertaining to rates.

It is a notorious fact that commissions have not been liberal or generous with the telephone companies—but they have tried to be fair. The utility company knows that with public utility commissions, it is no longer necessary to meet the corrupt methods that were necessary oftentimes in dealing with common councils. Therefore, it is to every utility man's interest to assist in making the commission a permanent department of our state and national governments in all matters pertaining to rates and services.

To do this it is necessary to carry on programs that will tell the complete truth to every citizen throughout the length and breadth of the land, so that he will know the facts; so that erroneous information may be replaced with correct information; so that instead of suspicion, there may be the utmost confidence; so that instead of antagonism, there may be co-operation

The problems confronting the utility of today may be different from the problems of 20 years ago, or even ten or five, but there are problems today that are just as serious in their possibilities as were those of the earlier years.

This problem of bringing about a better understanding as between the general public and the telephone owner is of tremendous importance so the public may know the inherent peculiarities and difficulties of the telephone business; so the public may know about our investments, rates, costs of conducting the business and profits; so they may know the nature of the work of the public utility commission as it regulates the telephone companies in matters of securities, rates and services.

These problems can be met successfully only through proper organization and proper co-operation.

We have the machinery in our state and national associations. Some of our state associations are emphasizing their importance and are doing good work, while others are lagging along doing little or nothing so far as these matters are concerned.

The first thing to do, so it seems to me, is for each association to commit itself to the job. Secondly, it should decide on a program and make some one man or more, responsible for making it effective.

The program should include advertising, news stories, addresses and printed matter, increased courtesy on the part of all telephone company employes all the way from the office boy to the president, and the best service possible.

Every Manager Should Cultivate His Ability to Make a Public Address About the Telephone.

Advertising.

Every telephone company should contract for a reasonable amount of space with the publishers of newspaper throughout the territory served. This will do more than any other one thing to place the publishers on a friendly relation. At least, it would be the exception where they would "knock." Also remember that the successful companies of the country do this. This space does not have to be used all at once but can be used throughout the year as desired.

News Stories.

After the contract is signed, cultivate the acquaintance and good will of the editor and reporters. When they call, always give them a cordial reception and load them up with news that is telephone news. If they fail to call on you, call on them.

This news does not have to be local in character, but can be anything relating to the history or the development of the telephone; or an item showing its importance and necessity, or where it played an important part in some happening of national or international importance. Use some statistics occasionally.

Addresses.

Much can be accomplished by the right kind of talks. Every manager should cultivate his ability to make an address. When you once get started, you will find it most helpful and a lot of fun—providing you bear in mind that an address should be "popular" and not "technical."

If you will use human interest language and put fire and "pep" into whatever you have to say, regardless of the length of your talk, your audience will be with you—but if you talk slowly, your audience will go to sleep, or if you talk in a low tone of voice so you can't be distinctly heard all over the room, those who can't hear you will give you some competition

by talking among themselves—at least, that is what they will feel like doing although they may not because of a sense that it would be discourteous. Or if you use technical language which they fail to understand, you lose their interest.

It is not difficult—just be yourself. If you make a grammatical mistake now and then, don't let that worry you; your audience will know that you mean all right.

Well, who are you going to talk to? There is the Chamber of Commerce, or other commercial clubs, the Rotary club, the Kiwanis club, the business college, the high school, the grammar school, the churches—no trouble at all on that score. Your only difficulty is to have some facts in your mind which, when pieced together, will make an interesting, educational talk.

You may say to yourself: "I don't know what I could say." That is no excuse, Mr. Manager, you can get some information together that will make a good talk, if you will. Your own company will provide material for a dozen addresses. In addition, there is TELEPHONY and other telephone magazines, any issues of which will provide material for an address.

There are now committees on public utility information in operation in a number of the states, and they will be glad to send you material for addresses. This is one of the very best ways of educating the public. In addition to the address, encourage them to ask questions. If you can answer, do so—if you are uncertain, say you don't know. Don't bluff or tell an untruth because your future usefulness is liable to be impaired.

Printed Matter.

Use lots of paper and ink—it doesn't cost much. Its importance depends on the words used and the thought expressed. Did you ever stop to think why my company spends many thousands of dollars annually in printed matter? For example, it sends several thousand copies of Automatic Telephone each month to operating men throughout the United States and abroad—and they cost lots of money. Do you know why?

Well, from the experience of three decades, my company knows it has something which every telephone company needs. That it will solve their problem and help them make money—so they send Automatic Telephone which tells just what is going on all over the world with the Strowger automatic, and eventually these companies will want to know more about it and then some day, one by one, they will sign their names on the dotted line.

The same thing is true in your case. Tell your people about your company with the printed word—steadily not spasmodically—and when you want $10,000 or $100,000, or any amount, you have a local market. Or if you need more revenue, tell your people the facts in the proper manner, and eventually they will help you get the increase. In the event of an emergency, tell your people about it and they will prove sympathetically helpful and patient.

Have you ever entered an office and had to transact business with an individual—man or woman—who was either so ignorant or discourteous, or both, that he failed to arise from his chair and extend a proper greeting; or who failed to smile and be cordial; or who could only talk in monosyllables, who—in the event you paid a bill—was not only guilty of the foregoing, but who failed to even extend a "Thank you" or if he did, it was little more than an ill-mannered grunt?

In all fairness, these kind of offices may be in the minority, but they do exist—I have had occasion to visit some of them.

Why not, as a matter of good business, train every employe to be courteous and friendly with every subscriber, present and prospective—a booster or a so-called "grouch." It will pay. Your company will have a better standing in the community.

Your citizenry will take greater interest and pride in your company if it is conducted along those lines.

The Best Possible Service.

What is service? Service is that which satisfies or pleases. It is not always necessary to rush out and buy new equipment—automatic or manual—in order to give service. In a general way, the writer assumes your equipment may last you for three or four or more years. It is more a matter of making the most out of what you have.

This involves proper organization and methods—but the spirit of "Good Will," of "Helpfulness," of "Courtesy," that permeates the entire organization in their dealings with the public and with each other, is the thing which more than any other one thing, will boost your stock in your community. The "please" and the "thank you" count—and count big. When some one tells you there is no "sentiment in business," don't let them fool you, for "sentiment honestly used is good business." These matters of courtesy and service can be effectively practiced by every one in the business, no matter what the circumstances as to wealth or education.

Then there is a wider field of educational co-operation necessary. So far, we have spoken of the telephone business but in addition, there are the other utilities—the heat, light and power companies, the gas companies and the electric railway companies.

They have the same problems that we in the telephone field have. Then through our organizations we should fraternize with them, through their associations, state and national—and in every practicable way co-operate with them.

That is exactly what the Illinois telephone companies did when through their representatives, they co-operated with the Illinois Committee on Public Utility Information, which has accomplished so much during the past two years and is now carrying on their work more actively than ever.

What they are doing in Illinois needs to be done in each state of these United States.

If we will each actively assume our responsibility in these matters along the lines suggested, the public would learn what the telephone man and the telephone company is doing for them—and when they realize that, and not before, they will appreciate the telephone.

They will realize it costs money to run a telephone business. They will be interested in the success of their telephone company and will, therefore, be interested in the telephone company getting proper rates which will enable the company to pay adequate wages and dividends that will attract additional capital with which to finance the necessary additions, extensions and betterments.

When each understands the other, neither will say "Go to hell, hayseed," for then there will be no division between the two.

The success of the telephone company means more success to the community. The success of the community means more success to the telephone company.

Extensive Telephone Development Under Way in China.

Extensive telephone improvements and extensions, embracing both long distance and local services, are under way in Kiangsu province, China, but will not be fully completed for some time. It is planned to connect all important cities in the province by long distance telephone services.

Connections between the city of Shanghai and Nanking will probably be completed by the end of this year or the first of next year.

The total cost of the changes now being effected in the province will amount to approximately $1,000,000, of which $425,000 will be expended in the city of Nanking in a complete reorganization of the local system, including $100,000 for new buildings, $150,000 for interior telephone equipment and $150,000 for exterior equipment.

The service between Nanking and Pukow, located across the Yangtze river, is also being extended.

The submarine cable with only two wires, which now connects these two cities, will be replaced by a new cable providing for 26 wires.

This, it is thought, will meet all requirements for telephone service at present and in the near future.

Principles of Telephone Traffic

One of a Series of Articles Setting Forth the Fundamental Elementary Principles of Telephone Traffic Work—Every Operator and Manager Should Read These Articles—The Equipment Provided for the Use of Traffic Employes

By E. L. Gaines

Traffic Superintendent, Home Telephone & Telegraph Co., Ft. Wayne, Ind

Although a telephone plant is designed primarily for the purpose of giving telephone service, there are some parts of a modern telephone plant which are vital to good service but which are used only indirectly in the rendering of that service. The part of the plant furnished for the convenience of the workers is such a part, and the greater share of this part of the plant is provided especially for the employes of the traffic department.

Fig. 27. Locker Room With Individual Metallic Lockers Provided With Key Locks.

This part of the plant may consist of any or all of the following features: Locker rooms or check rooms for the wraps and clothing and other personal belongings of the employes, rest and reading rooms, dining rooms, lunchrooms or cafeterias, quiet rooms, hospitals, roof gardens, assembly rooms and recreation rooms or gymnasium. Operating schools may also be brought under this classification although they are more nearly a part of the equipment regularly used for rendering service and in some instances actually are a part of such equipment.

Every telephone office regardless of its size should provide employes with lockers or some suitable place or compartment for their personal belongings. The operator must have a place for her hat, coat, umbrella and rubbers, her purse and furs, and any other personal belongings it may be necessary for her to bring to the office, and which she cannot have in the operating room. Individual iron or steel lockers are usually most satisfactory for this purpose and are far more sanitary than wooden lockers or built-in closets and cupboards.

A view of a locker room equipped with individual metallic lockers is shown in Fig. 27. Each of these lockers shown is about 12 inches square and six feet in height, thus giving the operator ample room for ordinary needs. Fig. 28 shows a locker room equipped with lockers having seven small individual compartments and one large compartment to be used in common with the seven small compartments. Each small compartment is provided with an individual combination lock and the large compartment may be opened from within any one of the smaller compartments.

The small compartments are used for the operators' hats, gloves, purses, etc., and the large compartment is provided with seven coat hangers for the coats of the seven operators using the one locker. Umbrella racks are arranged on the inside of the large doors. Combination locks are usually found to be a convenience as a great deal of difficulty is often experienced with operators losing keys when key locks are used, as shown on the lockers in Fig. 27.

Operators usually like the small compartment lockers best because the compartments are wider than the individual locker and allow more room for a large hat. A coat hanger is also an added convenience of the compartment lockers. The individual lockers shown in Fig. 27 are not wide enough for an ordinary coat hanger.

Some large offices have check rooms instead of locker rooms for taking care of employes' personal belongings. Check room service, like the convenience of personal lockers, is furnished the employes without charge. A woman is usually placed in charge of a check room and checks are given employes when their wraps are left in the room and are later used to redeem them.

The cost of providing check room service in a large office is nominal, although prohibitive in a small office. One of its main disadvantages is the difficulty experienced at times when a large number of employes are changing tours, thus occasioning a delay in getting or leaving their belongings.

It is difficult to say which is best, the check room or individual lockers. Many large offices having locker rooms have recently changed to check rooms and at the same time other large offices are changing from check rooms to locker rooms. Each office is a problem in itself and local conditions must determine which system is best for any individual office.

It is necessary in all offices to provide adequate restroom facilities for operators. Such rooms need not be elaborate or the furnishings expensive but rather homelike, attractive and comfortable. As a rule but one room of ample size to accommodate as many operators as may be given their rest period at the same time is all that is necessary. Wash rooms, toilet rooms and drinking fountains should be conveniently located adjoining the restrooms and what is usually termed a "quiet room," provided with couches where an operator may rest or sleep, should also be furnished.

The furnishings of the restroom should be designed with a view to comfort rather than appearances or luxury, and musical instruments of some kind should be provided—a piano or phonograph usually being most acceptable. Books and magazines are usually furnished and should be carefully selected by the chief operator or welfare worker with a view to providing wholesome reading matter that will be both entertaining and instruc-

tive. Copies of the current issues of several leading magazines should be available and particularly trade journals and any literature of especial interest to telephone workers. Many companies lay a great deal of emphasis upon making rest-rooms especially novel and attractive.

Exchanges are frequently found with office buildings which were not designed with sufficient room for adequate rest and retiring rooms. In some such cases rooms in adjoining buildings are obtained and fitted up for restrooms.

In Indianapolis, a large restroom was built by the telephone company on the roof of one of the office buildings. Light but substantial construction was used throughout so that the additional weight thrown on the roof was not too great. All four of the walls of this room are of glass and as the building is higher than the average height of other buildings in the vicinity, the splendid view of the city obtained from almost any location in the room is an added attraction.

One of the offices of the Southern Bell Telephone & Telegraph Co. at Atlanta, Ga., is unique in having a roof garden provided for the use of the operators in connection with the restroom. A regular tile floor was laid in cement to form the roof of a part of the building adjoining the restroom and the whole arranged as an attractive feature at but very little cost.

This same office has a hospital room adjoining the operating room. It is fitted out in white enamel furnishings and provided with every kind of emergency hospital equipment. The hospital room is not an unusual feature in a modern large office but is rather the rule instead of the exception. Where a large number of girls are employed, one or more trained nurses and a physician should be kept in regular attendance.

Many companies are today equipping their office buildings with recreation rooms or gymnasiums for the convenience of all of their employes. These recreation rooms usually consist of a room large enough for basket ball, indoor baseball and volley ball. Bowling alleys and pool and billiard tables are sometimes provided. These features are often found in large new offices where all of the available space is not yet needed for the telephone equipment or business offices for which it is designed to be used ultimately.

The same room that is used for a gymnasium may also be used as an assembly room where group meetings of the employes may be held for social purposes or for instruction. It is very important that some provision be made in every office, or at least in every exchange, for some kind of an assembly room where the employes may get together in a social way.

Employes' clubs and associations tend to promote a spirit of good fellowship between the workers and a spirit of loyalty to the company more than almost any other one thing. It is very difficult to keep such an organization alive unless the company takes enough interest in it to provide a suitable meeting place.

In every telephone office, regardless of its size, some provision should be made for serving warm lunches to the operators. In the smallest office this equipment may be nothing more than a gas plate, an ordinary kitchen sink and a few dishes and cooking utensils. With this equipment the operators may prepare their own lunches and not be compelled to leave the building for lunch on stormy and disagreeable days.

In larger plants something more elaborate in the way of equipment is necessary although until the office is large enough to justify the services of a matron continuously but little more can be done than has been outlined. Where the services of a matron are available, sandwiches and hot coffee and a few simple dishes may be prepared for the operators who do not care to bring their own lunches.

Fig. 28. Locker With Seven Small Individual Compartments and One Large Common Compartment—Combination Locks Secure the Small Compartments.

Some companies furnish the services of a matron and also furnish tea or coffee to the operators without charge. As a rule, however, when lunches are served, the actual cost of the food plus the cost of its preparation, is charged for. In this way a great added convenience is given the employes who are usually very willing to pay the nominal cost of the convenience.

Almost every conceivable arrangement of dining and lunchrooms may be found in the various offices of the country, from the simple lunchroom in the small office just described, where the operator may prepare her own lunch, to the largest cafeterias and dining rooms in the big offices. The majority of these are arranged on the cafeteria or self-serve plan where the food is prepared in a kitchen within the building and placed on serving counters where the employes may pass by and select their own food and carry it to the dining room.

The dining rooms should be equipped with glass or enameled top tables on which the lunches may be eaten or with chairs provided with a table arm in conformity with dairy lunch equipment. Tables usually accommodate four persons although larger tables are often used. It has been found as a rule that employes like to congregate in small groups of not over four at lunch periods. If at any time it is desired to arrange tables for larger groups, the smaller ones may be placed closely together to accommodate any number desired.

Large exchanges often have one centrally located kitchen in which the food is cooked and prepared for all of the company's cafeterias in the city. After its preparation, it is placed in suitable heat-retaining containers and delivered to the cafeterias in the various offices. A substantial reduction in the cost of the preparation of food is often made in this manner. It is considered desirable to have the kitchen arranged so that it is entirely separated from the dining room and provided with fans or other suitable means of withdrawing all odors of cooking from the building.

In the majority of cafeterias, the serving counter is located in the dining room but in some instances it is located in the kitchen. The latter location requires less labor on the part of those preparing the luncheons and although the kitchen is, of course, plainly visible to any one at the serving counter, this does not seem to be an objectionable feature.

Cleanliness is absolutely essential to the success of a cafeteria; in fact nothing will cause general dissatisfaction so quickly as a cafeteria that is not kept clean and where food of poor quality is provided. The principle of cleanliness should apply throughout all of the operators' quarters as well as in the operating rooms. Nothing will add so much to the

attractiveness of the place as neatness and cleanliness.

The cafeteria is essentially an employe's institution and it is in the dining room that the employe should be allowed more freedom from discipline than anywhere else. At the luncheon hour, the employes should be allowed to relax and throw off the mental strain of their work. They should be allowed to laugh and visit and have a wholesome good time while eating.

Strict discipline in the dining room will defeat the purpose of a cafeteria and cause its complete failure ultimately. Employes should not be given checks or "meal tickets" and herded through the lunch room but should be allowed to retain their individuality. Unless this is done the proper spirit of the workers can not be maintained.

"All Set" for Illinois Convention Next Week.

The officers and directors of The Illinois Independent Telephone Association are introducing several novel features in the arrangements for the annual convention at the Leland Hotel, Springfield, on November 8, 9 and 10.

Each delegate attending the convention will be presented with a reference handbook containing information and data useful to operating telephone men. This handbook will also contain advertisements of the manufacturers, jobbers and supply dealers and the convention program itself. It will be of permanent value, bound in handy pocket size so that it can be of the maximum usefulness as a reference book in connection with matters which confront the operating telephone man daily.

Reduced fares to the Springfield convention can be obtained on all steam railroads and on the Illinois Traction System from points in Illinois and from St. Louis, Mo. Delegates attending the convention should request a reduced fare certificate at the time of purchasing their going ticket and should have these certificates validated through the office of the Secretary-Treasurer, Jay G. Mitchell, Springfield, immediately upon their arrival.

Just as soon as 350 certificates have been validated, reduced fare for the return trip will be made available to all presenting validated certificates. Delegates should give this matter close attention so that their negligence may not prevent others from receiving the benefit of the reduced rates.

An excellent program has been prepared including papers by recognized authorities on questions of a technical character, and the social features are especially well planned including a banquet and golf tournament. There are many problems confronting the telephone interests of Illinois which demand the careful consideration of every interest identified with the industry, and these matters will be given careful consideration and the fullest possible discussion at the Springfield meeting.

It has been found necessary, on account of the inability of Judge F. C. Stransky, of Savanna, to be present, to make some modifications in the program as originally published. On Wednesday afternoon an address will be delivered by Douglas Malloch, "The Poet of the Woods."

Sundry Snapshots Along the Trail

Observations and Comments, Pertinent and Otherwise, On the Sunshine and Shadows of Telephone Work

By Well Clay

There's a glory on the willow, and a glory on the pine;
There's a glory on the maple in this golden Autumn time;
There's a glory on the mountains, and a glory on the sea;
Each its special kind of glory for those who wish to see.

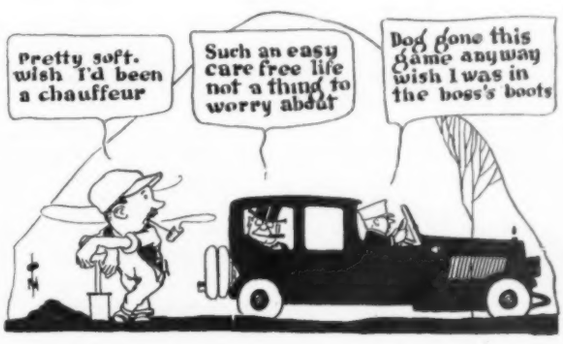
There's a glory to the morning when the east is first alight,
And a different kind of glory of the stars that shine at night;
There's a glory in the heavens when the sun is shining bright,
And a golden flood of glory when the moon gives forth her light.

There's a million kinds of glory, one can see them everywhere,
But for those who never notice, there's no glory anywhere.
There always is some glory, if we look with seeing eye,
Whether in the woodland, or in the sea or sky.

There always is glory where one looks for it—but the trouble seems to be that we see all the glory in the other fellow's work. Our everyday jobs seem tame and tiresome to us, but the other fellow's work seems more interesting and adventuresome.

The doctor sees glory in the life of a lawyer, and a lawyer knows there is more glory in a doctor's life than in practicing law. Just the other day I heard a professional man say regretfully, "Oh, how I wish I had become a doctor! There is so much more of an opportunity for doing good in the world and it's more interesting than my line."

I once knew an actor in a side-show attached to a circus, and his one longing was to get out of that and get into something where he could see something. While all the crowds were paying their good money, day by day, to get in and see the things which formed his environment, he was just as anxious to get away to see something of life elsewhere. That is a good deal the way in life for all of us. But the truth is, of course, there is glory in every job if one only takes the time to look for it in the right kind of a spirit.


Pretty soft. wish I'd been a chauffeur
Such an easy care free life not a thing to worry about
Dog gone this game anyway wish I was in the boss's boots

We See All the Glory in the Other Fellow's Work.

When once a man sees the glory, he will follow to the end of the rainbow, whether it is in racing horses, sailing ships, gambling, globe-trotting, farming, or any other work. That the labor in his field of glory does not return a reasonable return does not often deter the true follower from his chosen pathway.

The mathematician still delivers his mass of figures, the astronomer, night after night, pursues his mystic search among the stars; the race-horse driver sleeps in a box stall to be near his beloved trotters, and the gold hunter still tramps on, hungry and alone, amid the dangers and hardships of the wilderness, content in his search after the fabulous mine which one day is to be his own.

If this is to be set down as a reliable rule of life, it seems that one must be born with that particular bent and liking for any business when he discovers himself to be engaged in it, if he is to make a maximum success in it. This will also explain why we don't get out of the business if other activities seem to look better to us. We like the one we are in too well, and I know if my old-time friend, the side-show man, were to have had the chance to quit, he would have been back in the show business again in a few days.

What we mostly need—all of us—is to take a vacation from our own work for a

few days, once in a while, and travel with the other fellow and see his side of the game. We would soon all be back, tickled to death to be in the harness again. We would then see the glory in our own jobs.

We have on many and numerous occasions, as the old line boss used to say, set down in these columns criticisms regarding the apparent attitude of the railroad and warehouse commissioners in rate-making cases. Some of the criticisms were my own but many of them were voiced by other telephone men, it merely being my desire to represent the state of mind of telephone managers in general, as evidenced by their conversations on various subjects. Some of these criticisms were justifiable, and some were very likely otherwise.

As I have said, I merely try to show

Microscopes and Not Telescopes Are Our Greatest Need Today.

the state of mind as shown in this manner from the limited field with which I come in contact. The commissioners, no doubt, have a large amount of material on which to base their criticisms of my operations and the operations of many in my sphere of work. It is right and proper to criticise, if it is just criticism and is followed up by an endeavor to right the wrong methods in question, but otherwise it is of no value at all, and acts rather as a drag on the profession at large.

While we criticize the commission for not giving us proper rates and otherwise restricting our ability to make the thing pay, do we always on our part do all the things which we should, in the way of operating procedure, to justify our contention that we are doing all that we can to make it pay? Do we watch the corners and stop the little leaks as we should in order that we may not only save money but help turn the red ink black.

Do we look after our collections as prudence would suggest? Or do we merely allow ourselves to fall into the habit of losing two or three hundred dollars a year in uncollectible accounts, simply because it is easier that way when the commission allows a figure which covers the loss? If we collected them, we would have the money or what it would pay for, instead of the other way? You say: "The commission allows enough to cover this item, so why should I go chasing delinquents all over for a dollar or so each, when I could be taking things a little easier?"

Do you keep your plant in shape, or do you let it run to seed on the theory that depreciation is taking care of it anyhow and there is no need to worry? Do you keep the service up to top-notch, or do you let it run down to a drowsy level on the theory that the commission expects rural plants to be that way on the average and so you might as well let her drift as long as you average up with the rest?

Do you see to it that you charge and collect all the installation charges which the commission allows, as well as insist on the discount dates on the payment of bills, because it is easier that way and your subscribers don't have to be "riled up" every time they lapse a day or so on their payments?

Do you take care of your materials as you should, and make and collect the proper charge for all the sales you make of odds and ends? Or do you figure on being a good fellow and pass out Farmer Brown a ball of old wire to use in fixing up his fences, or Farmer Jones an anchor or so for fastening his windmill, or Farmer Jensen a few old poles to use as fence posts, without charge, to promote the general good feeling? You know the commission allows certain figures for losses in the course of business—obsolescense and the like—and it is easier to collect from the public to cover than to be a tightwad when it comes to charging a friend for a few dollars' worth of old materials.

There are a good many things which the members of a commission could find to criticize us, and I believe the helpful criticisms from this source on our backslidings would be gladly given space by the publishers of TELEPHONY. Perhaps it would point out a way for us to come part way towards closing the gap now existing between profit and loss on our books. If we could come half-way and wipe out part of it, perhaps they would find it hard not to come the other half or whatever margin remained to be met.

APHORISM: Microscopes and not telescopes are our greatest need today.

Wisconsin Telephone Co. Adopts Resolution on E. J. Lins' Death.

A resolution was recently adopted by the directors of the Wisconsin Telephone Co. on the death of Edmund J. Lins, late president of the Eagle Telephone Co., which occurred May 22, 1921.

Embodied in the resolution is the statement that through the enterprise of Mr. Lins and his associates, the Eagle Telephone Co., of Eagle, Wis., has become one of the largest and most useful institutions of its kind in the state of Wisconsin. Having been one of the pioneer companies in developing and providing telephone service—not only to densely populated communities, but in the extension of telephone facilities to the rural communities in the country contiguous and adjacent to the municipalities in which telephone exchanges were constructed—it had thereby greatly contributed in making life happier and pleasanter for the resident of these communities.

Mr. Lins was one of the first operators of telephone properties in Wisconsin to enter into a connecting arrangement with the Wisconsin Telephone Co., for the purpose of making available to the subscribers and patrons of the telephone system of which he was the chief directing head, the long distance service facilities of the Bell system.

The resolution was concluded by a formal expression of regret to the family of Mr. Lins and to the many commercial enterprises with which he was connected.

Troubles Resulting from Florida Storm Being Cleared.

W. G. Brorien, president of the Peninsula Telephone Co., Tampa, Fla., reports that although the storm which occurred in Tampa and vicinity on the 25th of last month was the most severe experienced in the history of that region, early press reports were greatly exaggerated as to the damage done.

The damage to telephone lines was principally broken drops and wires and toll leads which were blown over on account of soft ground. Practically all toll lines were restored to service by the last of the week and rapid progress made in the clearing up of small troubles.

Little permanent damage to Tampa was done and the cities in that territory are said to be prepared to provide the usual comforts for all winter visitors.

San Francisco Gains 9,557 Telephones in Six Months.

San Francisco, Calif., had 158,807 telephone subscribers on August 1, a net gain of 9,557, or 6 per cent, since February, it was disclosed when distribution was begun of the new Pacific Telephone & Telegraph Co.'s directories in October.

Increase in the installation of new telephones is frequently taken to indicate the relative gain in population, but statisticians were inclined to doubt that the city had actually grown at the rate of 1 per cent a month.

The new directory has a total circulation of 185,000, the surplus being made necessary to supply new subscribers, to replace lost books and to furnish large firms with several extra copies.

There are 668 pages in the book, including advertising and out of town lists.

"Telephony's" Home Study Course for Telephone Men

A Complete Presentation of the Principles Underlying Modern Telephony in All Its Branches—Arranged Systematically So That Regular Reading and Faithful Study Will Qualify Ambitious Men for Higher Positions—Prepared Under Supervision of Stanley R. Edwards—This Section Written by Jay G. Mitchell

Quiz Questions on the Preceding Installment.

1157. When the connector switch has seized the bank contacts of the *called* line, is there a flow of current through the winding of the cutoff relay of the called line? What is one result of this flow of current through the winding of the called line cut-off relay? To what operating condition of manual equipment is this similar?

1158. Explain the operating relation of slow-acting relays *F* and *H*, Fig. 322, in connection with the operation of relay "busy" relay *N* prevent the operation of relay *B*? Explain the probable circuit conditions that would result from the initial operation of relay *B*. How is the calling telephone station apprised when the called line circuit is busy?

1161. When is relay *Z* first operated? Explain how, after relay *R* has been released, that current is sent through the winding of the lease magnet. After the two-motion connector-switch wiper shaft has been released and restored to normal, providing the intermediate selector and other elements of the trunk remain in

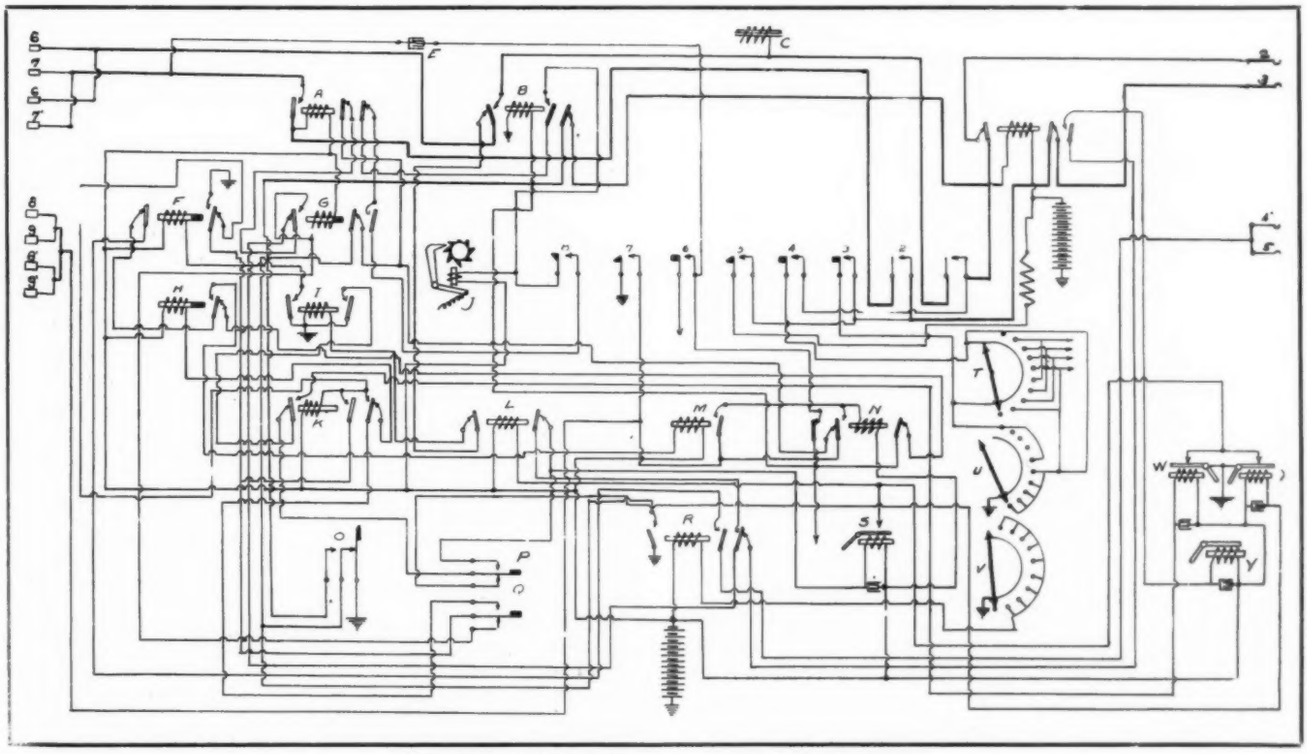


Fig. 322. Wiring of Connector Switch Equipment.

1159. To what is the operation of "busy" relay *N*, Fig. 322, due? What is the relation between the test wipers of the intermediate selector switch, Fig. 321, and the operation of "busy" relay *N*, Fig. 322?

1159. After the initial operation of "busy" relay *N*, is its armature at once released? Explain why this is true. What circuit condition must be brought about, "busy" relay *N* having once been operated, in order that it may be again released?

1160. How does the operation of relay *R* is brought about as follows:

At the instant of the release of the armature of slow-acting relay *H*, subsequent to the release of the armature of slow-acting relay *F*, relays *N* and *R* are in the operated position. The operation of relay *N*, the "busy" relay, interrupts the flow of holding current through the winding of slow-acting relay *G*, which, after an appreciable interval releases its armature and completes a circuit traceable as follows:

Starting at the positive or grounded terminal of the common battery, the current flows through the normal-open retary off-normal contact *O* (now closed), the normally-closed break contact of slow-acting relay *G*, the normally-closed break contact of relay *A*, the normally-closed make-and-break contact of slow-acting relay *G*, the normally-open make-and-break contact of relay *R* (now closed), the normally-closed break contact of relay *L*, the winding of the motor magnet of single-motion ringing-current selecting back-action switch *S* and the common battery.

place, how is the signal indicating that the called line circuit is busy continued? When will the despatch of this signal be discontinued?

CHAPTER XXXIII. Operating Combinations Including Switching (Continued).

1162. *The release of relay R.*—In making the explanation of the connector-switch release operation, it was assumed that relay *R*, Fig. 322, had already been released and had restored its contacts to the normal condition. The release of

As a result of the flow of current in this circuit, the motor magnet of *S* is energized and the movement of its armature causes its pawl to move forward engaging the next step of the toothed wheel in readiness to advance the wiper shaft one step in the rotary sense when the flow of current through the winding of *S* shall have been interrupted. The motion of the armature lever of *S* completes an obvious circuit for a flow of current through the winding of relay *L*, (it must be remembered that the armature of the single-motion ringing-current selecting switch *S* is connected to the positive or grounded terminal of the common battery, although the drawing does not so show) and the common battery.

The resulting operation of relay *L* interrupts the flow of current through the winding of the motor magnet of *S* and as a result of the magnetic release of its armature its wipers are advanced one step. When the movement of the wiper shaft of single-motion switch *S* has placed the wipers *T*, *U*, and *V*, in contact with the succeeding row of bank contacts, the circuit through which currunt flows into the winding of relay *L* will have been interrupted by the normal position of the armature of *S*, and the energizing circuit for *S* will have been re-established.

This operation is repeated until the successive movements of the wiper shaft shall have entirely withdrawn the wipers *T*, *U*, and *V* from their associated banks. When this stage has been reached, the circuit over which current has been flowing into the winding of relay *R* will have been interrupted at the wiper *V*, which will have been restored to its normal position, and relay *R* will be released.

1163. *Assured restoration to normal of ringing current selecting switch.*—It is of the utmost importance that the single-motion ringing-current selecting back-action switch *S* be restored to its normal position regardless of the outcome of the call in connection with which it is first moved. Suppose, for instance, that the main connector switch is mechanically dislodged from its position in the row.

The construction of the main two-motion switch is such that it will automatically return its wiper shaft to the normal position in such a contingency but if the ringing-current selecting switch *S* has been moved, it may be restored to normal only through the passage of switch-driving current impulses through the winding of its motor magnet. In such a condition the restoration of *S* to normal is brought about as follows:

The normal position of the two-motion switch with which it is associated, means that the normally-open contact at the off-normal springs *O* cannot longer supply the connection with the positive or grounded terminal of the common battery. This is supplied, therefore, through the normally-open make contact of relay *R* (now closed).

The circuit over which the energizing current will pass to the winding of the motor magnet *S*, under this rather abnormal condition, may be traced as follows:

Starting at the positive or grounded terminal of the common battery the current passes through the normally-open make contact of relay *R* (now closed), the normally-closed break contact of slow-acting relay *G*, the normally-closed break contact of relay *A*, the normally-closed make-and-break contact of slow-acting relay *G*, the normally-open make-and-break contact of relay *R* (now closed), the normally-closed break contact of relay *L*, the winding of the motor magnet of single-motion ringing-current selecting switch *S* and the common battery.

It is to be noted that this is precisely the same circuit as traced before except that the connection with the positive or grounded terminal of the common battery is reached at the normally-open contacts of relay *R* rather than at the normally-open rotary off-normal contact *O*.

Obviously this circuit will cause the rotation of the wiper shaft of single-motion switch *S* just as would the previously-outlined condition and will remain operative until the wipers, *T*, *U*, and *V*, have reached their normal position again. In other words, the wipers of single-motion switch *S*, having been once moved, are bound to be restored to their normal position regardless of the other equipment conditions normally or abnormally brought about.

(*To be continued*)

Company Features Station to Station Service in Novel Way.

The Cumberland Telephone & Telegraph Co., of Louisville, Ky., is featuring its station-to-station service on long distance, and has had solicitors out to tell business men in that city about the service.

The company is advertising the service by allowing a five-minute conversation for 25 cents, from 8:30 p. m. to 4:30 a. m., to Bardstown, Campbellsville, Elizabethtown, Eminence, Frankfort, Georgetown, Harrodsburg, Lawrenceberg, Lebanon and Shelbyville.

HUMDRUM

By Miss Anne Barnes.

Traveling Chief Operator, Iowa Independent Telephone Association, Des Moines, Iowa.

It seems odd that a word like humdrum should be defined as it is by Webster. The word looks and sounds rather pleasant and lively, to say the least—hum and drum.

We rarely hum unless we are contented—well—just as a cat purrs when he is warm and sleepy.

Drum suggests liveliness; and is expressed sometimes by the playing of some kind of a noisy tune rapidly and regularly.

Webster defines humdrum as dull, monotonous, commonplace.

Of course, even though *I* have an entirely different view of the meaning of the word, it would be worse than reckless for me to tell any one who entertained me that I had a humdrum time—and I do not *ever* intend to do so. I am accepting Webster's definition of the word.

We meet people daily who have labeled their home life, or business life, as humdrum; they make the fact evident before we have been in contact with them very long. If we had time, or cared to analyze the conditions they tell about, I feel pretty sure we would find hundrum is the wrong word to express their difficulties. In fact, it is likely we would find such people made their troubles and then labeled them.

As I came up the hill this morning, some men were grading the road preparatory to paving it. I noticed that the men and the horses were giving all of their physical strength to the job. The drivers would order the horses to go, then immediately order them to stop. I do not know anything about grading, but it occurred to me that it must be a humdrum existence, while it lasted, for both men and beasts, as there was apparently no mental effort.

I cannot believe that any of us can *have* a humdrum existence as there is so much to do in the world. Therefore, if our work *seems* humdrum, there is a pretty good indication that we are not putting the mental into it. That is where humdrum starts.

Automatic Switching of Toll Traffic

Second Installment of The Use of Automatic Switches in Making Toll Telephone Connections — The Present Status of Development and Various Circuits Used — Paper Presented Before The Western Society of Engineers

By Arthur Bessey Smith

Chief Research Engineer, Automatic Electric Co.

Two-Wire Loop, Fig. 1.

The general properties of the two-wire loop with a two-winding line relay are fairly well illustrated by the performance of one certain relay, which has a total of 11,000 turns and 400 ohms.

The data which follow represent the lowest resistance leak which may be applied to the line of given length (resistance in ohms) and still be able to operate the switch of which the relay forms part. A lower value of leakage resistance causes the switch to fail, either because the impulse delivered by the relay to the switch is too long or too short. No factor of safety is considered in this data and the relay whose performance is here shown is only fairly representative of the general class to which it belongs.

These data, given on this page, are plotted in Fig. 8.

The leak across the line produces a current in the line relay which persists even after the calling device opens the line. This prevents the magnetism from falling to as low a point at is would if the circuit were completely opened and hence delays the release of the armature. Also, because of this residual current and the resulting residual magnetism and pull on the armature, the relay responds much more quickly when the calling device closes the line. These two effects shorten the impulse delivered by the back contact of the relay.

Line loop resistance ohms.	Leakage resistance ohms.	Repeated impulse.
0	6,700	too short
700	6,400	too short
1,400	6,100	too short

Leak Between Line Wires.

Line loop resistance ohms.	Leakage resistance ohms.	Repeated impulse.
0	3,400	too short
700	3,300	too short
1,400	3,100	too short

Leak from Negative Line to Earth.

Line loop resistance ohms.	Leakage resistance ohms.	Repeated impulse.
0	150	too short
100	130	too short
200	100	too short
300	70	too short
350	20	too short
400	0	no failure
500	20	too long
600	50	too long
700	90	too long
800	140	too long
900	200	too long
1,000	280	too long
1,100	590	too long
1,200	870	too long
1,400	2,700	too long

Leak from Positive Line to Earth.

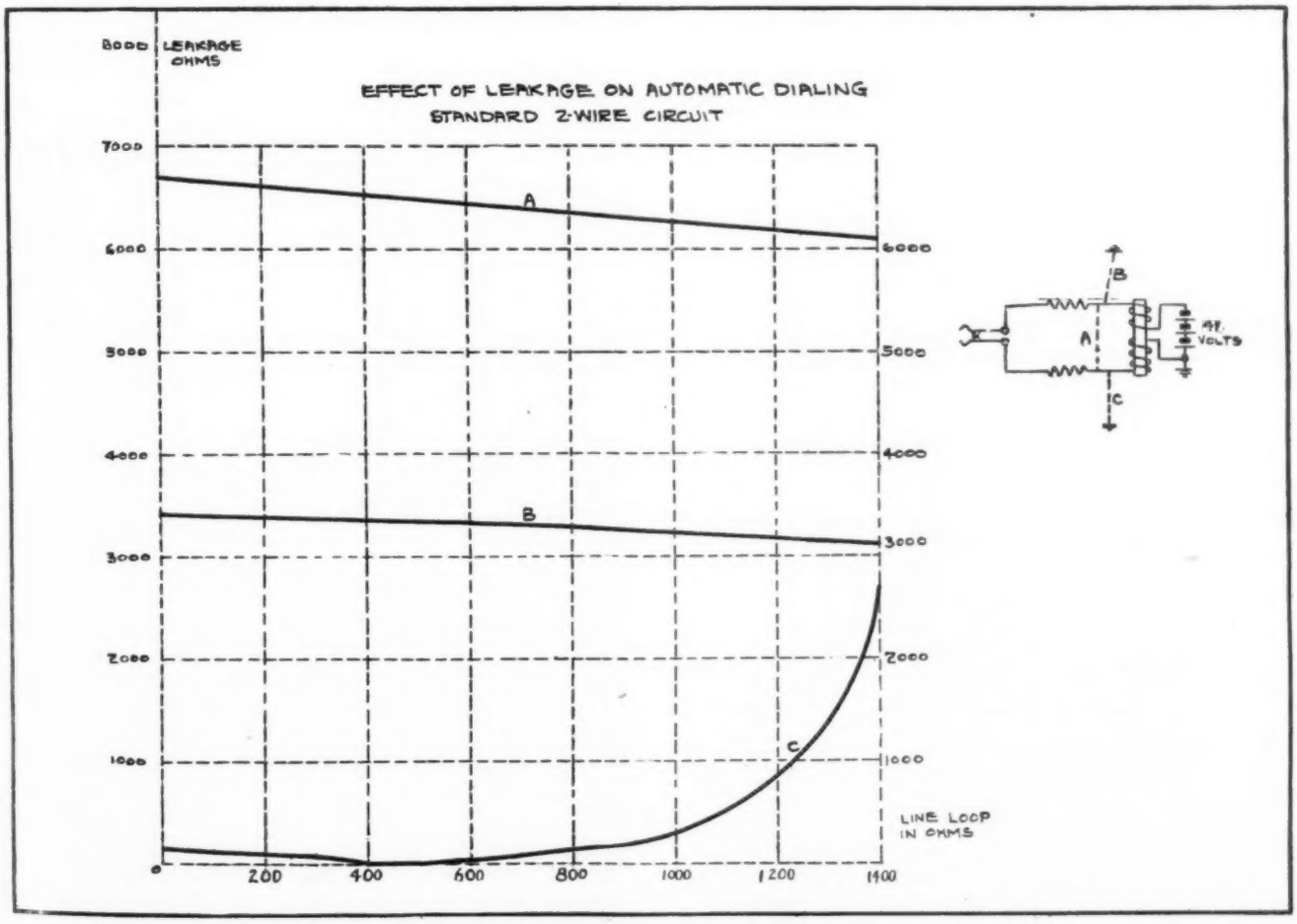


Fig. 8. **Lowest Resistance Leak Which May Be Applied to Line of Given Length (Resistance in Ohms) and Still Be Able to Operate Automatic Switches.**

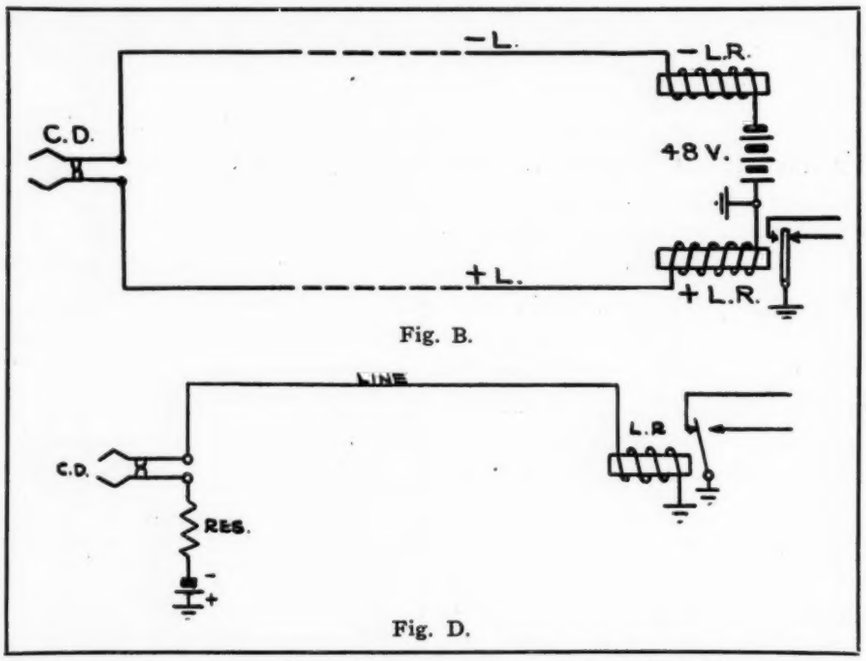


Fig. B.

Fig. D.

Fig. 2-B. Two-Wire Loop With Positive Line Relay. Fig. 2-D. Single Line Wire, Battery at Calling Device.

The leak from negative line to earth affects only half the turns of wire on the relay, hence it will only have the effect on the action.

The leak from positive line to earth affects chiefly the positive half of the winding. Two effects exist—the diversion of current from that winding, which tends to weaken it so that it would deliver a long impulse, and the shunting effect, which tends to hold the relay energized for a time after the current is cut off, thereby causing the relay to deliver a shorter impulse. On very short lines, extremely low resistance leaks produce the slow release effect. On longer lines, the weakening effect predominates.

Leak between line wires.

Line loop resistance ohms.	Leakage resistance ohms.	Repeated impulse.
0	6,200	too short
850	5,300	too short
1,900	4,700	too short

Leak from negative line to earth.

1,580 ohms leak. Affects negative (holding) relay before becoming low enough to affect dialing, except on very long line.

The particular relay selected to illustrate the properties of two-wire loop with positive line relay, Fig. 2-*B*, has an identical mechanical and magnetic structure, differing only in winding. It has 8,400 turns and 200 ohms' resistance.

The data, given in the first column on following page, is plotted in Fig. 9.

Single Wire Line, Battery at Calling Device.

The same identical relay, used in the test of the Fig. 2-*B* circuit, was used to illustrate the arrangement of Fig. 2-*D*. Residual battery current in the relay is

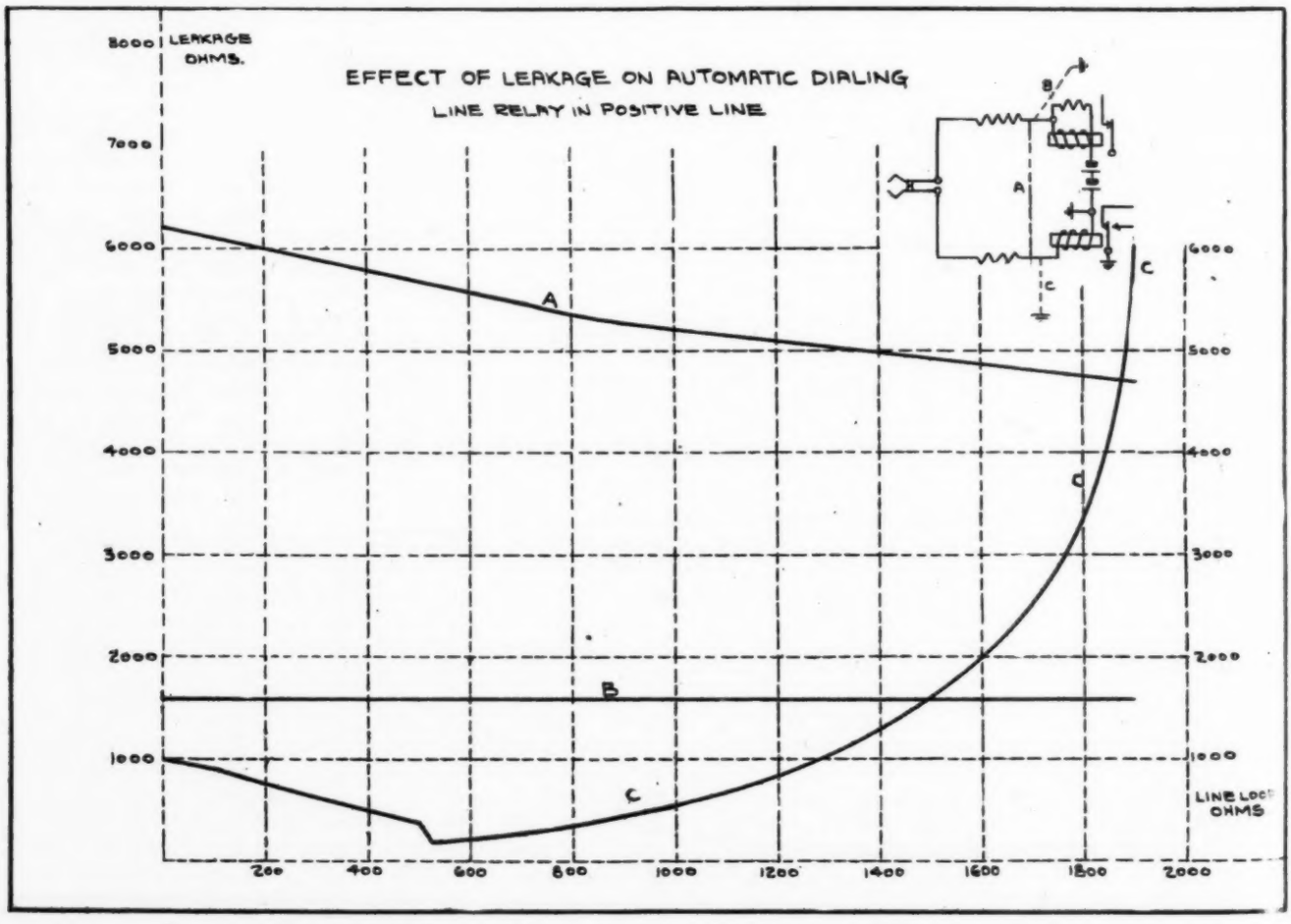


Fig. 9. Curve Plotted from Data Concerning Leakage from Positive Line to Earth.

Line loop resistance ohms.	Leakage resistance ohms.	Repeated impulse.
0	1,000	too short
100	900	too short
200	770	too short
300	630	too short
400	500	too short
500	390	too short
525	180	too long
550	190	too long
600	210	too long
700	280	too long
800	350	too long
900	440	too long
1,000	550	too long
1,200	810	too long
1,400	1,300	too long
1,600	2,000	too long
1,800	3,400	too long
1,900	6,000	too long

Leak from Positive Line to aErth.

Line resistance ohms.	Leakage resistance ohms.	Repeated. impulse.
0	1,100	too short
100	1,000	too short
200	900	too short
300	670	too short
350	540	too short
400	90	too long
425	100	too long
450	100	too long
500	120	too long
600	170	too long
700	230	too long
800	310	too long
900	390	too long
1,000	480	too long
1,200	750	too long
1,400	1,200	too long
1,600	2,100	too long
1,800	4,100	too long
2,000	12,000	too long

entirely absent. The leak acts either to divert current from the relay or to cause it to be slow to release when the calling device breaks the circuit.

The data, given in the next column, is plotted in Fig. 10.

The same two effects are noticeable as have been mentioned.

Loop Circuit, Battery at Calling Device

When the two-wire loop dialing was applied to the toll line through repeating coils, it was necessary to change it to the form of Fig. 11. The relay was grounded at its center point, and for two-way working both relays are normally connected to the line, forming a closed loop grounded at the two electrically balanced center points.

To call in one direction, the control relay, *CR*-1, is energized, switching the line from the line relay, *LR*-1, to the battery and calling device, *CD*-1. The latter may be a relay controlled as described later. Impulse springs break both sides of circuit.

The relay illustrating properties of this circuit is the same used for standard two-wire circuit of Fig. 1, having 400 ohms and 11,000 turns, with same adjustment.

Line loop resistance ohms.	Leakage resistance ohms.	Repeated impulse.
0	1,000	too short
200	860	too short
400	590	too short
600	520	too long
800	680	too long
1,000	1,000	too long
1,200	1,400	too long
1,400	2,200	too long
1,600	3,300	too long
1,800	5,300	too long
2,000	8,900	too long

Leak Between Line Wires.

Line loop resistance ohms.	Leakage resistance ohms.	Repeated impulse.
0	130	too short
40	90	too long
100	100	too long
200	120	too long
400	170	too long
600	260	too long
800	360	too long
1,000	480	too long
1,200	590	too long
1,400	1,000	too long
1,600	1,400	too long
1,800	2,200	too long
2,000	3,400	too long

Leak from Negative Line to Earth.

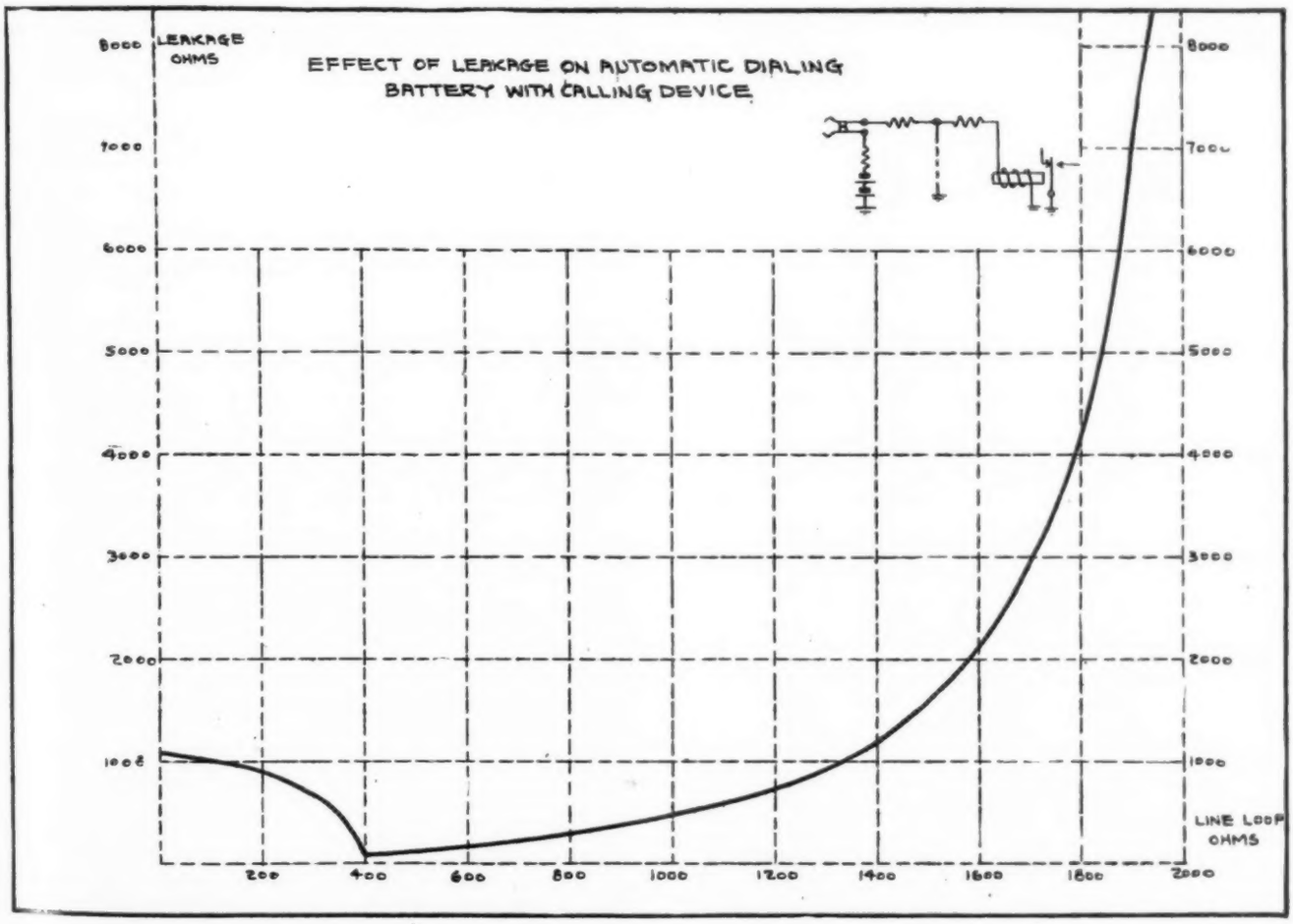


Fig. 10. Curve Showing Leakage Effect on Automatic Dialing Battery With Calling Device.

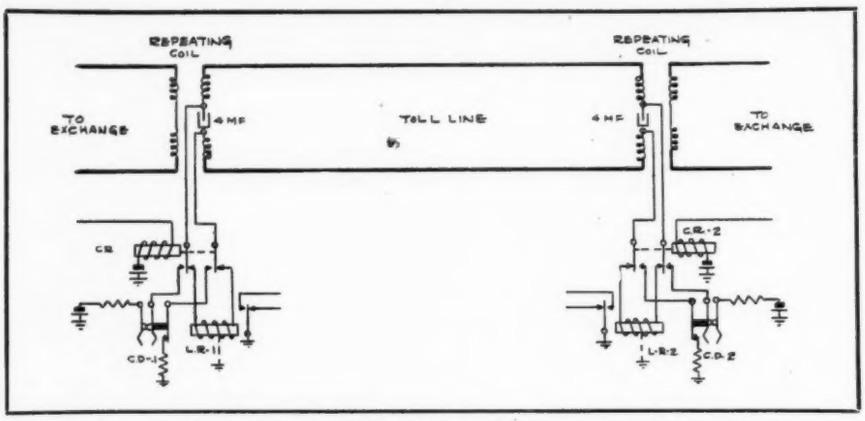


Fig. 11. Dialing Circuit, 2-Wire Loop With Battery at Calling Device.

Leak from positive line to earth.

Line loop resistance ohms.	Leakage resistance ohms.	Repeated impulse.
0	130	too short
200	170	too short
400	0	no failure
to 2,000	0	no failure

These data are plotted in Fig. 12.

Application of Dialing Circuits to Toll Lines.

While some of the dialing circuits discussed are inherently bound up with the telephone line circuit, others may be applied to the toll line in several ways.

One of the most used toll line controlling circuits is shown in Fig. 13. It embodies the fundamentals of Fig. 2-*D* arranged for alternate two-way working. If the line is seized from the west, the relay, *CR*-1, pulls up, switching the line circuit from ground to the calling device —or an impulsing relay—and battery. The line relay, *LR*-2, at the east end of the line pulls up and seizes the automatic switch which is to be used.

The break impulses generated by the calling device operate the switch to set up the connection. To release, the control relay, *CR*-1, is de-energized, switching the line back to earth, on which the line relay, *LR*-2, opens the switch circuit permanently, permitting the usual release.

Seizure from the east end acts in the same way, for the circuit is symmetrical.

This controlling circuit is often applied to the toll line as a simplex, Fig. 14. It works in either direction with equal facility. The line relay, *LR*-1 or *LR*-2, may operate the switch over a single wire as shown or may have its contact inserted into the line loop.

The same controlling circuit is sometimes composited onto the toll line as shown on Fig. 15. This gives two circuits for telegraph or for dialing. If only one is needed for dialing, the other may be used or leased for Morse working.

If manual working must be retained, or the automatic ringing is to be started by key ringing, the composite ringer must be used. This receives ordinary telephone ringing current from the manual toll board (symbolized by the jack) and in its place sends out on the toll line an alternating current whose frequency is high enough not to interfere with the telegraph or automatic relays.

If no manual ringing is done, the composite ringer is dispensed with.

Perhaps the best application of this control circuit is on phantomed circuits,

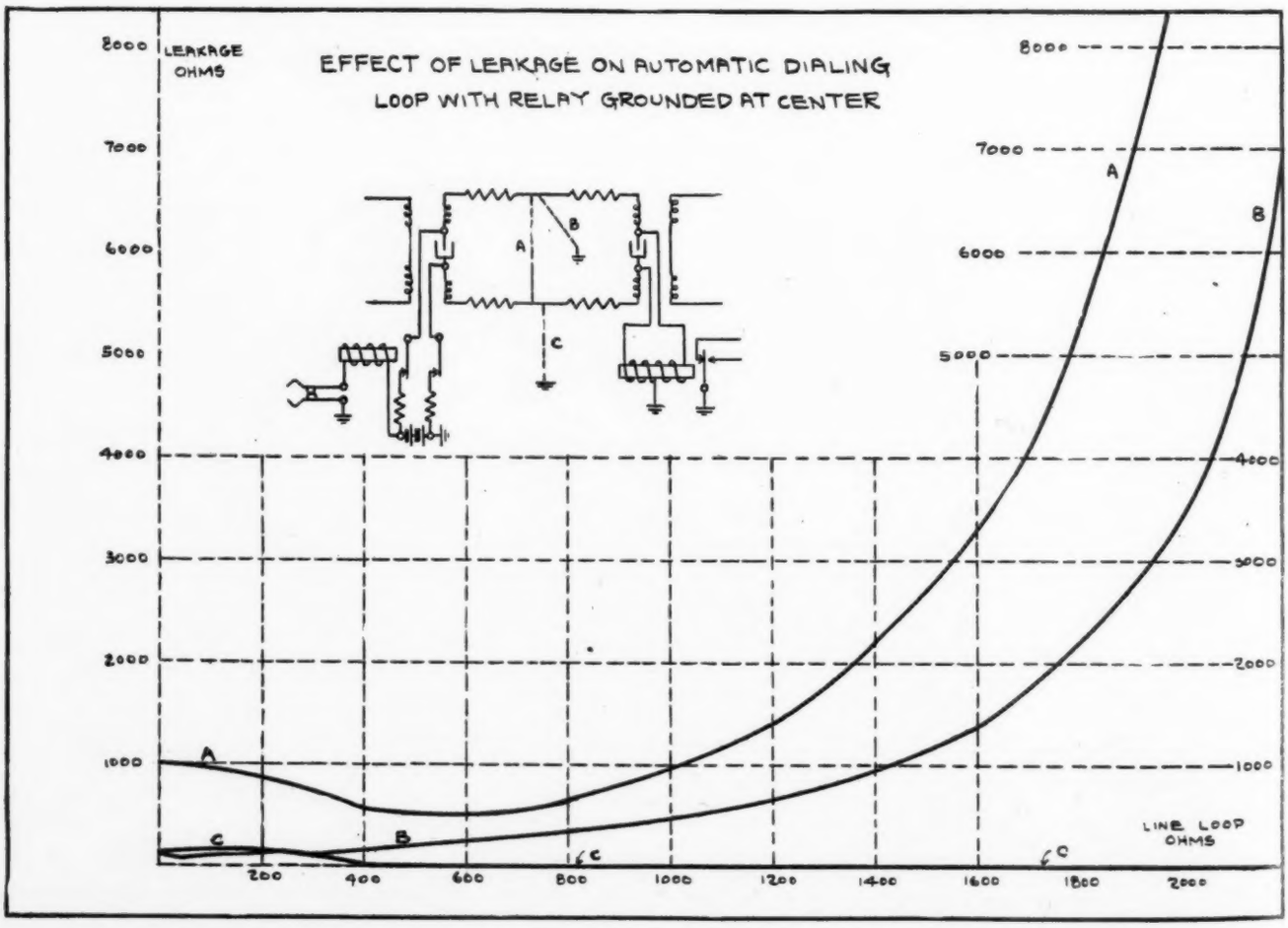


Fig. 12. Curves Showing Leak Between Line Wires, Leak from Negative Line to Earth and Positive Line to Earth.

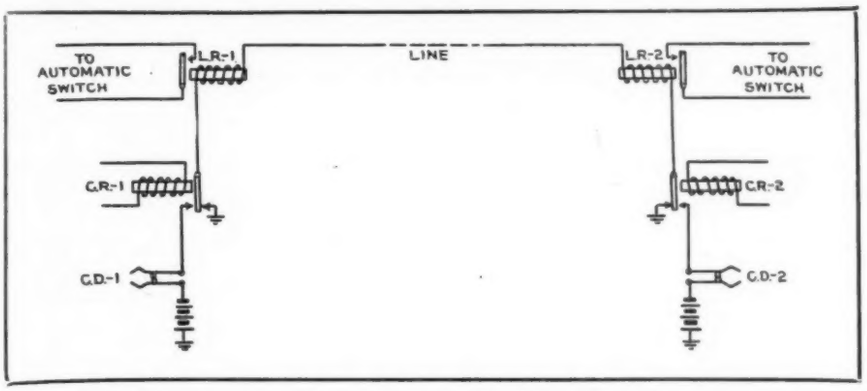


Fig. 13. One of the Most Used Toll Line Circuits, Elementary Form.

Fig. 16. By this arrangement, four dialing circuits are obtained, any one of which may be used for any purpose.

It is not necessary to keep a fundamental control circuit strictly associated with the talking circuit whose automatic switches it is to control. Any control circuit can be designed to dial any connection desired, provided the control circuit is not by its nature built into the talking circuit.

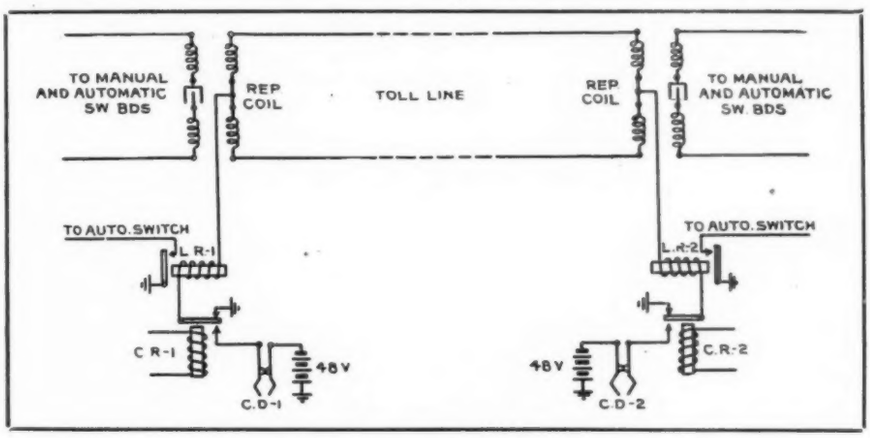


Fig. 14. Simplex Controlling Circuit Applied to Toll Line.

It is usual for three of the control circuits of Fig. 16 to be used to dial connections for the two physical circuits and the phantom circuit. The fourth control circuit is either used for telegraph or left dead.

In the attachment of automatic toll lines to an automatic exchange there are two aspects: (1) The trunking arrangements; (2) the electrical circuits. Both will be illustrated by the example of a single office exchange. The multi-office exchange differs from it by relatively small details, although these details sometimes are important.

Trunking Arrangements.

Out of the many plans which are in use, the arrangement of Fig. 17 has been chosen to illustrate the matter.

The toll line from outside passes through the main distributing frame, *MDF*, the test panel, and the intermediate distributing frame, *IDF*, almost as usual. On the test panel the composite ringer appears on jacks, the ringer apparatus being on the repeater board of the automatic exchange. The composite coils and condensers are located on the coil rack and connected to plugs on the test panel. This includes the operating leg, which goes to a plug of its own.

On the intermediate distributing frame, IDF, is the meeting place of manual (toll board) and automatic. The operating leg is jumpered directly to the toll selector-repeater, but the talking circuit auxiliary wires are multipled between the three points as necessary.

Toll calls are made automatically by the toll line operator, *L*, who dials through the composite apparatus, as has been described in connection with Figs. 15 and 16. It is assumed that the distant exchange is equipped in the same way as the one illustrated here.

Automatic toll calls come into the exchange through a selector repeater which is one of the toll switches provided. Its bank leads to several second selectors which, in turn, lead to connectors designed for toll work and called "toll connectors." Their banks are multipled with the local connectors.

The calling subscriber at telephone, *T*, calls the long distance number—usually *O*—which connects him over the toll-recording trunk to the recording toll operator, *R*. The latter passes the usual ticket (dotted arrow) to the toll line operator, *L*, who dials up the distant city. It is usual for her to use the toll service trunk at once to call the calling subscriber, merely holding his line without ringing.

In the distant city, the call comes in through the main distributing frame to the test panel, where the impulses pass over the operating leg to the toll selector-repeater. The latter acts as a selector on the first digit of the call number, and selects an idle trunk to the second selectors. But on all subsequent digits, the first selector acts as a repeater, repeating the impulses either to two-wire or to single wire as the second selectors and connectors may be made.

It is somewhat simpler to lead the incoming toll line from the test panel through the intermediate distributing frame to a line switch. In this case the line relay of the composite set, or of the simplex set if that is used, will be arranged to close the talking circuit and to control it according to the principles of Fig. 6. This necessitates that the ringing be the same as that used for local calls, which is usually automatic and periodic. Although it does not give the operator as good control as key ringing, it is preferred by some operating companies for short-haul traffic.

Purely manual ringing has been found to be much less effective than periodic ringing. Hence it is now the practice to arrange it so that the toll operator mere-

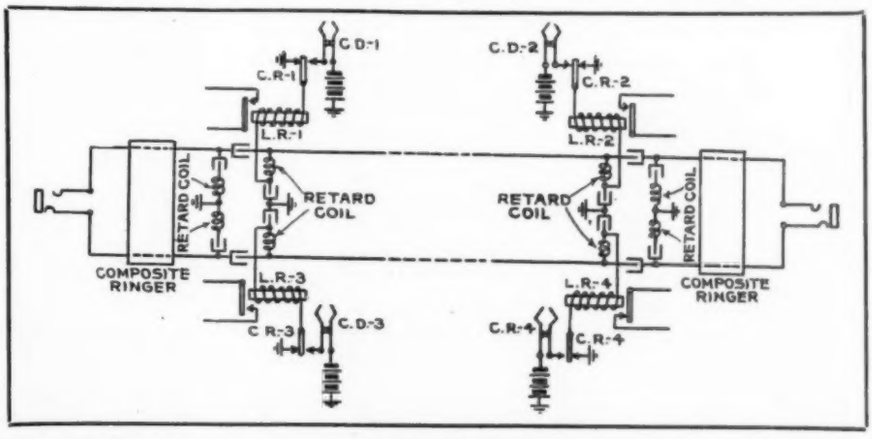


Fig. 15. Controlling Circuit Composited onto Toll Line Giving Two Circuits for Telegraph or Dialing.

ly starts the ringing in the distant city when she uses her ringing key. The ringing is periodic and does not stop until the called subscriber answers. If he hangs up, the operator may start it again by ringing as before, causing the periodic ringing to begin again.

The arrangement in a multi-office exchange may differ from the above in the toll service trunks. They may be run by groups to the offices, so that the toll operator does not dial the first part of the local subscriber's call number. The office is chosen by selecting the group of trunks, but it has been found that the operators prefer to dial the entire number rather than to handle part of it one way and the rest another way.

(To be concluded.)

Indiana Association Directors Re-Elect Old Officers.

All of the old officers of the Indiana Telephone Association were re-elected for the ensuing year at a meeting of the board of directors of the association in Indianapolis last week. Henry A. Barnhart, of Rochester, is president; Samuel Tomlinson, Plymouth, first vice-president; S. O. Isom, Mitchell, second vice-president; F. O. Cuppy, Lafayette, secretary, and Max F. Hosea, of Indianapolis, treasurer.

Mr. Cuppy and Frank Wampler, of Indianapolis, were named as a committee to lay the matter of high tension lines, which was discussed at the recent state convention of the association, before the Indiana Public Service Commission.

The Indiana Telephone Association has already signified to the public service commission and to the state highway commission that it wishes to take up with it, at the commissions' convenience, proposals for a new basis of rate authorization for telephones, the matter of paralleling telephone lines with high tension lines and of tree planting along the public highways. The hearings, which probably will be within a few weeks, will affect both the rates and the character of telephone service throughout the state.

At the recent convention of the association, F. B. McKinnon, president of the United States Independent Telephone Association, suggested that the basis of fixing telephone rates by exhaustive appraisal of the property of the individual plant, was costly and cumbersome and that classification of plants according to the size of the city, the conditions of their construction, and that the fixing of rates by the group would be a great relief economically and a plan as just as the one now followed.

The suggestion was echoed in a resolution adopted by the association. Other resolutions adopted also indicated the association's wish for some settlement of the troubles arising from high tension lines paralleling telephone lines and the disorders prospective if great numbers of trees are planted near enough to the wires for the branches to reach them.

The Indiana Public Service Commission, though it had signified a willingness some time ago to hear the telephone association's representatives on any suggestion aiming at better or less costly service, is understood to have little hope of solving the problem as suggested by the state association.

"I have not seen the resolution adopted by the Indiana Telephone Association, and do not know precisely what it contains," said John W. McCardle, chairman of the commission, "but I think it is impossible under the present law to fix rates by groups, or in any other way except by individual appraisal of the plants."

High tension wires running near a telephone line, even if on the opposite side of the road, make it noisy and, sometimes worthless and trees touching the wires produce similar disturbance, particularly in wet weather. In view of this, the Indiana telephone owners are anxious to have some decision which either will stop the tree planting and high tension paralleling, or will create an understanding of how the trouble thus produced is to be accounted for—all, it is averred, as a necessity on common grounds. The telephone men point out that disturbance of service means expense, and expense which the public eventually must bear.

The decision of the public commission to make all roads in its keeping 50 feet wide, entails a great program of pole moving, which is another problem, in the sight of the telephone owners, which they expect to take up with one or the other of the two state commissions.

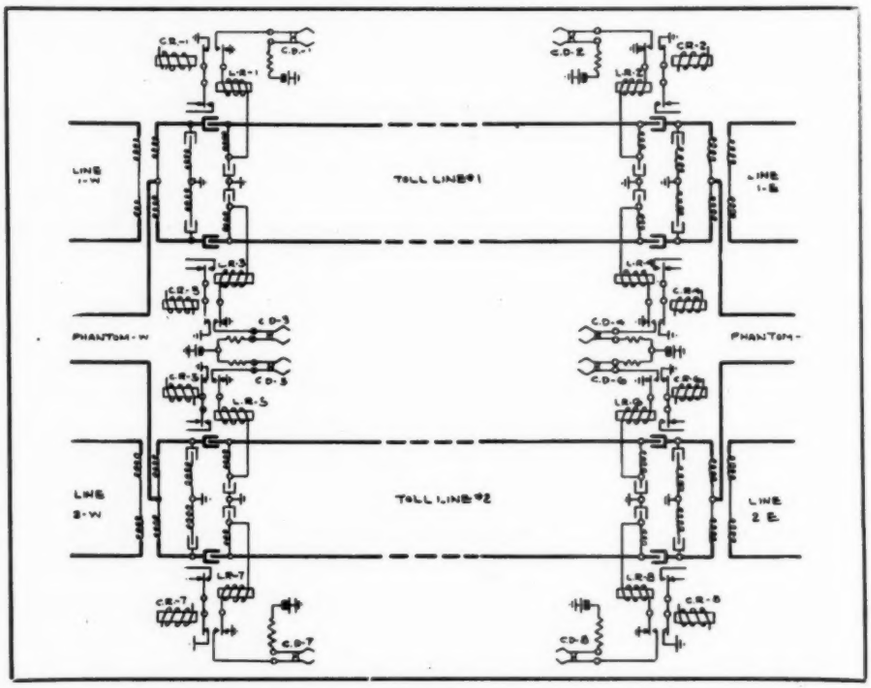


Fig. 16.—Application of Control Circuits on Phantomed Circuits.

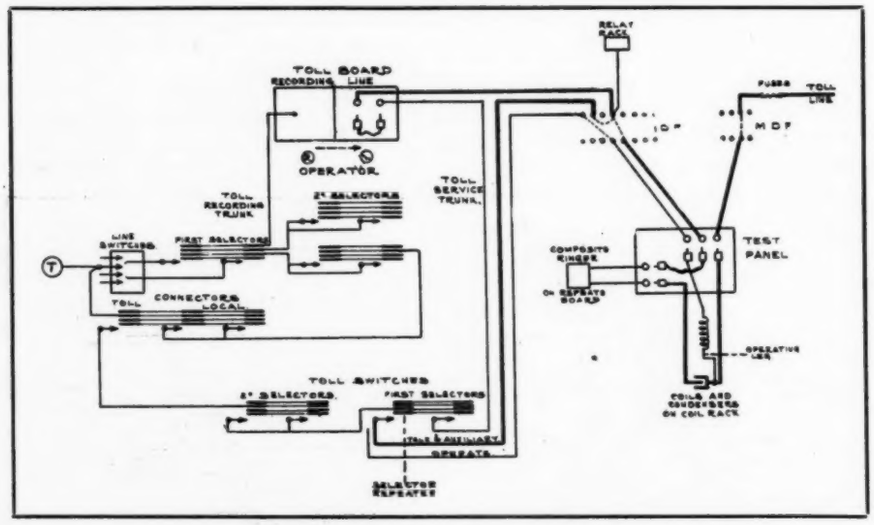


Fig. 17. Automatic Toll Line Connection to Exchange.

Buffalo Case Brought to a Close

Commission Makes Substantial Reduction in Rates Charged by New York Telephone Co. in Buffalo—Fight Between Company and City Closed—1921 Return Held Excessive—Larger Number of Calls Per Month Provided For

A substantial reduction of telephone rates charged by the New York Telephone Co. in the city of Buffalo was made October 27 by the New York Public Service Commission. The opinion and order were drawn by Commissioner Charles G. Blakeslee, of Binghamton, and unanimously approved by the entire commission. The decision brings to an end a long-drawn out fight before the commission waged by the company and Mayor George S. Buck, representing the city of Buffalo.

The commission finds that the return of the telephone company during 1921 on its investment was excessive to the extent of 5 per cent on what is known as "measured" service and 25 cents a month on certain of its "flat rate" system. The revision also provides for a larger number of calls per month to subscribers in addition to the reduction in the cost. The order adopted by the commission provides:

(1) "That the rates charged and collected by the New York Telephone Co. for local exchange service in the Buffalo local area, from all subscribers using measured service, and classified as: (a) Individual line—business and residence; (b) four-party line—residence only: and (c) four-party line—business and residence (applicable to outside area—within the Buffalo central office district) were and are excessive in the amount, and to the extent of 5 per cent of the charges so collected from all such subscribers, for such service, during each of the months of January, February, March, April, May, June, July, August, September and October, 1921.

(2) "That the rates charged and collected by the New York Telephone Co. for local exchange service in the Buffalo local area, from all subscribers using service under 'flat rates' and classified as:

(a) "Flat rates—residence — two-party line" were and are excessive in the amount and to the extent of 25 cents per month, so collected from all such subscribers, for such service, during each of the months of January, February, March, April, May, June, July, August September, and October of 1921."

Here is the new schedule of rates the company is ordered to file with the commission, effective November 1, 1921:

1. Message Rates.

Individual line—business and residences:

Local messages sent in one month.	Charge per month.
75 or less	$4.00
Next 125, each	.05
Next 50, each	.04
All over 250, each	.03

Four-party line—residence only:

Local messages sent in one month.	Charge per month.
55 or less	$2.75
Next 45, each	.04
All over 100, each	.03

2. Flat Rates:

	Individual line.	Two-party line.
Residence	$5.00	$3.75

(b) Outside the area indicated in *A* and within the Buffalo central office district, specified in this tariff, including the localities of Roland, Sloan and Snyder:

Individual and two-party lines:

(b) Outside the area indicated in *A* and within the Buffalo central office district, specified in this tariff, including the localities of Roland, Sloan and Snyder:

Individual and two-party lines:

Business residence: The rates for business and residence service are the same as shown in *A* plus exchange line mileage charge as per *C*.

Four-party line—business and residence.

Local messages sent in one month.	Charge per month.
65 or less	$3.25
Next 35, each	.04
All over, 100	.03

The memorandum by Commissioner Blakeslee on which the decision is based is as follows:

"The original complaint in this case was made to the former commission on the 29th day of April, 1918, against certain rates proposed by the New York Telephone Co. to become effective in the City of Buffalo May 1, 1918. After the filing thereof, the effective date of such schedule was postponed until August 1, 1918. Hearing of the matter was indefinitely postponed owing to the taking over of the possession, control and operation of the telephone and telegraph companies by the federal government. The control of these companies was relinquished by the government on August 1, 1919.

On December 1, 1919, a new rate schedule was put into effect by the respondent, and another complaint was filed against the last increase. September 1, 1920, the company filed a third schedule, further increasing its rates, and against all of such increases the city of Buffalo complains. The cases were consolidated and tried in conjunction with the Syracuse telephone rate cases (TELEPHONY of August 13, 1921). Certain testimony taken in the Syracuse cases was stipulated to be considered in this case, and vice versa.

Method of Proof.

"The method of proof followed was the same as that in the Syracuse cases, i. e., the segregated district, known as the Buffalo local area, was alone considered in fixing a rate base. All that was said in the Syracuse cases relative to the inaccuracies of segregation; the allocation of fixed capital, revenues and expenses, attempted in those cases, applies here. But the proof in each of these cases having been submitted by the parties, under an order of the former commission, on the segregated district theory, the cases have been considered from that standpoint alone, and decided upon the proof submitted.

By an ordinance of the city of Buffalo, accepted by the company, the burden of proof to establish the reasonableness of the proposed rates was assumed by the telephone company.

Disputed Matters.

"The principal matters of difference are in regard to—

(a) The value of the company's property used and useful in the Buffalo local area.

(b) The New York Telephone Co.'s contract with the American Telegraph & Telephone Co.

(c) The amount of expenses, and the portion of depreciation reserves, etc., of the company to be allocated to the Buffalo local area.

Valuation of Property.

"Three appraisals were submitted by the company. These all began with the well-known inventory of December 31, 1914, known as the '1915 inventory.' In the first appraisal the company sets up the book costs of the various classes of property acquired before January 1, 1915. For property acquired after January 1, 1915, a 'war increment' was added to reflect an increased cost under war conditions. Thus in this appraisal the costs of the period of the war are not reflected in any units of the property except those added since January 1, 1915. Using this

REASONS FOR FAILURES.

A lad at a public school was asked to give as briefly as possible the reasons for the defeat of the Spanish Armada, in the days of Queen Elizabeth.

He gave his answer in fourteen words. He wrote: "The defeat was caused by the Spaniards' lack of three ships—Seamanship, Marksmanship, Leadership."

So we might say that many a firm has been lost for the lack of the three ships: —Workmanship, Friendship, Leadership.—The Efficiency Magazine.

method the structural value, which has been defined as 'the estimated cost of replacement or reproduction less deterioration' is determined as $11,914,887 as of October 31, 1919.

In the second appraisal, the 'war increment' is applied to all the principal elements of property irrespective of the time of construction. By this method the structural value as of October 31, 1919, is fixed at $14,029,990.

The third appraisal is an attempt to estimate the replacement costs new, as of the time of the hearings. The valuations of the units of the property in this appraisal are fixed with relation to prices prevailing January 1, 1920. With this method, a value as of October 31, 1919, of $16,877,300 is arrived at.

The city contends that the property should be appraised with respect to the actual book costs, and insists that the unit prices should be those which the company itself has used in estimating retirement costs. The company, on the other hand, insists upon the value of the property, using the different methods of computation described. As has often been pointed out, value and costs are not always the same.

The statute of this state expressly requires the fixing of rates upon the fair value of the property used for the public benefit, and the decisions of our highest courts have consistently required the following of that method. (Wilcox vs. Consolidated Gas Co. 212 U. S. 19; Denver vs. Denver Union Water Co. 246 U. S. 178; People ex. rel. Iroquois Natural Gas Co. vs. Public Service Com., N. Y. App. Div. 3rd Dept., Jan., 1921.)

The problem of fixing fair values, however, is so closely related to and combined with economic considerations that in addition to reproduction cost, this commission's consideration should also be given to the actual investment cost of original construction, the amounts expended in permanent improvements and betterments, and the earning capacity and requirements of the company. This is well stated by Chairman Prendergast in case No. 7797, 'Matter of petition of New York State Railways':

> It cannot be presumed that the commission is confined to any one type of valuation. Business experience and common justice to the public command that it should not be. To reiterate the argument which has been used very frequently of late by regulatory bodies, it would be gravely unfair to the public to use the extraordinary dislocation in prices due to the world war as a ground work for the fixation of a rate base.
>
> While the high prices of the present period may or may not continue, yet, until a general period of average cost can be checked by the figures of experience, all elements of valuation, actual individual cost, replacement value, and reproduction cost less depreciation, must be considered.

This is the more patent in order that on the one hand, a public utility may not, without a dollar of additional investment, and because of economic upheaval, claim vastly increased valuations upon which to base its return, or, on the other hand, valuations and return be so restricted as to keep capital and enterprise out of the public utility field, and so deprive consumers of the extent and quality of service which they should have.

In other words, we believe that rates should be based upon the reasonable fair value of the property as it exists at the time of hearing, and that neither original cost nor reproduction cost new, considered separately, are determinative, but consideration must be given to original costs and to present reproduction cost, less depreciation, as well as to all other facts and circumstances which have a bearing upon the value of the property, and a fair present value determined after consideration of all these elements. Each case must be considered on its own merits, and controlled by its own circumstances, and such result of value arrived at as may be just and right.

Upon this theory and from these premises, after a full and careful consideration of the entire evidence, we find that the reasonable value of the properties of the New York Telephone Co. in the Buffalo local area, for rate-making purposes, in the year 1919, can be fairly put at $11,796,436.

This figure contains all elements of value, of every kind, with the exception of working capital, upon which the company is entitled to a return in that year; and this figure reflects the actual fair value of the property used and useful in the public service as of that date.

Depreciation.

"With regard to depreciation, it must be noted that the respondent's expert conceded that its reserves were of sufficiently large dimensions so as not to require a continuance of their accumulation according to the annual percentages heretofore used. This, however, may be more aptly considered, and the result properly applied, when the entire business of the company is considered.

Allocation of this reserve to the Buffalo local area presents the same difficulties noted in the Syracuse cases. Upon all the evidence we find the figure of $1,716,065.08 to be equitable and have used it in our computations. We have, in our figures, added to the yearly reserve allocated to the Buffalo local area, the same percentage by which the entire reserves of this company have been increasing during the past eight years.

Expenses.

"In the Syracuse cases the company produced figures showing that its requirements for materials and supplies worked out on an average of $2.18 per station. In the Buffalo area the company makes an estimate of $2.20 per station for materials and supplies. We are of the opinion that this sum is excessive, and in view of the evident decline in prices of materials and supplies, it must be reduced. We have considered a figure of $2 per station as a reasonable amount.

In the matter of working cash, it is evident that sufficient must be allowed to provide from four to six weeks' demand in labor payrolls, as well as other immediate cash requirements. In addition, allowance must be made for contingencies.

"An amount has, therefore, been set up, which is—for all practical purposes—equal to the amount necessary to cover all bills payable for a period of two months, including the actual traffic, commercial, general, miscellaneous and rent expenses, together with a portion of the expenses for taxes.

We believe that the expenses for 1921 in the matter of current maintenance, traffic, general and miscellaneous expenses, etc., should not be greater than in 1920. This, for the reason that a decline in prices of materials and supplies is evident, and that certain readjustments in other expenses are necessarily to be looked for.

While the company will undoubtedly have additional stations in operation, the decline in prices of materials and in other expenses should be sufficient to offset it. In any event, the company's duty to the public requires that it shall practice the most rigid economy consistent with the rendition of the proper services.

Contract With the A. T. & T. Co.

"The 4½ per cent contract—so-called—is always a matter of contention in rate cases with the New York Telephone Co. The contract itself and the payment of 4½ per cent of the gross revenues under the contract was discussed at length in the Syracuse telephone rate cases.

"This commission is convinced that the claimed basis for payments (4½ per cent of gross revenues) is fundamentally wrong; that it is unbusinesslike, and in the absence of proof of the value of the services should not be allowed.

GET IT DONE.

It isn't the job we intended to do,
Or the labor we've just begun,
That puts us right on the balance sheet
It's the work we have really done.

Our credit is built upon things we do,
Our debit on things we shirk;
The man who totals the biggest plus
Is the man who completes his work.

Good intentions do not pay bills;
It's easy enough to plan.
To wish is the play of an office boy;
To do is the job of a man.

—Richard Lord.

Individuality

Columbia Gray Label Telephone Cells

There was a time when a battery was a battery any way you looked at it. Then came specialization with Columbia introducing the Gray Label Cell as the telephone battery of the industry.

Since then rapid strides have been made, Columbia batteries keeping pace with the progress of the telephone world. It is manifest that Columbias have entrenched themselves firmly in the minds of telephone men whenever batteries are needed. Longer life is not merely a talking point but something recorded in black and white wherever records are kept. Exceptional recuperative ability is evident on the most busy lines.

Less Maintenance Cost Spells Economy

Actual battery cost is a matter of maintenance cost. Less time and labor involved—fewer lines out of order—these factors are of paramount importance to telephone companies where maximum economy is desired.

Columbia Dry Batteries have always been known to be cheaper in the long run. Moreover, the recent reduction in Columbia prices presents still greater opportunities to effect larger savings.

"Gray Label" is distinct as a telephone battery of ***telephone amperage*** *requirements. It is one of the members of the Columbia dry battery family, equipped with Fahnestock Spring Clip Binding Posts at no extra charge.*

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In this case, the complainants specifically claim that similar services are performed by the New York Telephone Co. for the Jamestown Telephone Corp., based on an annual rental of 75 cents per instrument. There being in this case no proof on the part of the company as to the full extent or value of the services claimed to be performed by the American Telegraph & Telephone Co., we will fix 75 cents per instrument as the payment under this contract.

The basis for payment, the intercorporate relationship between the parties, and the fact that no proof is offered as to the value or extent of the services rendered, indicate that a full and complete investigation of the effect of this contract should be had, as soon as may be, to the end that a sound basis may be fixed for the payments which shall be fair and just to the subscriber and to the company.

Revenues and Return.

"The figures set forth indicate that the net revenues of 1919-1920 were not such as to produce more than a fair return. For 1921 it is clear that more than a fair return is being received.

Under all the evidence, we find that the company has and will receive during the first ten months of 1921—based on the present rates—a return which is excessive in an amount of 5 per cent of the charges collected for local exchange service in the Buffalo local area from all subscribers using metered service and classified as:

(a) Individual line—business and residence.

(b) Four-party line—residence only.

(c) Four-party line—business and residence (applicable to outside area—within the Buffalo central office district).

We further find that the company has and will receive during the first ten months of 1921—based on the present rates—a return which is excessive in an amount of 25 cents per month collected from all subscribers paying flat rates, and classified as:

(a) Flat rate, residence two-party line.

We find that the flat rates charged and collected from all subscribers using the service classified as:

(a) Flat rate, residence, individual line are not excessive.

Proposed New Schedule of Rates.

"A schedule of rates to produce a fair return—considering present economic conditions and the probable future reductions in expenses, is set forth. The operation of this schedule will not only effect a substantial reduction to subscribers in the Buffalo local area but at the same time will give a greater number of messages in the metered classifications at the minimum monthly charge."

Illinois' Depreciation Statement

Views of Illinois Independent Telephone Association Relative to Classes of Telephone Property for Which Depreciation Charges May Be Included Under Operating Expenses, Filed with Interstate Commerce Commission

In any discussion of the subject of depreciation on telephone properties, it is necessary to differentiate clearly between the depreciation actually accruing on the property and the provision which must be made to offset the portion of the cost of furnishing telephone service which comprises the continual consumption of the original investment due to the expiration of its service life.

This discussion, therefore, is confined to the consideration of the necessary provision that must be made to cover that portion of the cost of furnishing telephone service due to the progressive reduction of the service value of the property involved in furnishing this service.

I. Classes of Depreciable Property.

The property which is required in order that telephone service may be furnished, is composed of a great number of items, differing very substantially in their physical characteristics, the period of useful service value of only a small portion of which is determined solely by the factors of physical wear and tear. Since the total property is composed of a number of items having different physical characteristics as well as widely-varying periods of service value, it is necessary to divide telephone property to offset the total depreciation accruing as the several individual periods of service of the several property items expire, may be determined.

In general, the fixed capital accounts prescribed by the Interstate Commerce Commission, with certain subdivisions, afford a basis for such a classification of telephone property. An illustration of a necessary subdivision of one of the fixed capital accounts may be found in the three classifications—copper wire, iron wire, and insulated wire—all of which are included in the fixed capital accounts prescribed under the several account headings covering "Aerial Wire."

It is necessary to assign differing service periods to each of these sub-divisions on account of varying characteristics. Another instance, applicable to many Bell systems, is found in the fixed capital accounts entitled "Toll Aerial Cable," "Toll Aerial Wire," "Exchange Underground Cable" and "Toll Underground Cable" which includes coils employed in connection with the wire or cable. It is advisable in estimating the average annual or monthly allowance to offset depreciation, that these coils be assigned to an individual classification other than the toll wire and cable accounts.

With this brief explanation it is suggested that the total average annual allowance to offset depreciation in any telephone plant be estimated by classifying the total property and by fixing the costs, the salvage value, the cost of removal and the period of service value in years, for each of the following property classifications:

Right of way, exchange
Right of way, toll
Buildings
Central office equipment
Subscribers' station apparatus
Subscribers' station installations
Interior block wires
Private branch exchanges
Booths and special fittings
Pole lines, exchange
Pole lines, toll
Aerial cable, exchange
Aerial cable, toll
Aerial wire, exchange copper
Aerial wire, exchange iron
Aerial wire, exchange, insulated
Aerial wire, toll, copper
Aerial wire, toll, iron
Aerial wire, toll, loading coils
Underground conduit, exchange, main
Underground conduit, exch'ge, subsidiary
Underground conduit, toll
Underground cable, exchange, main
Underground cable, exchange, subsidiary
Underground cable, exch'ge, loading coils
Underground cable, toll
Underground cable, toll, loading coils
Submarine cable, exchange
Submarine cable, toll
Furniture and fixtures
General shop equipment
General store equipment
General stable and garage equipment
General tools and implements
Franchises
Patent rights
Other intangible capital
Interest during construction

II. Method of Ascertaining the Service Life and Salvage Value.

SERVICE LIFE: The service life of any given item of property necessary for furnishing telephone service is not, except by accident, coincident with the physical life of the same item. The service life is the period in years which elapses between the time of installation and the time of economical retirement.

SALVAGE: The service value of any given item of property required in furnishing telephone service, is the cost of the item, including labor and incidental expense of installation, plus the cost of retiring the item from service and less the fair value of the item after it is retired from service. When such an item of property may not be again used in fur-

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"P&H" Guaranteed Penetration Process

You can absolutely depend upon the *"P & H"* Guaranteed Penetration Process for longest pole life.

It guarantees a uniform half inch penetration of the preservative throughout the ground line area of the pole.

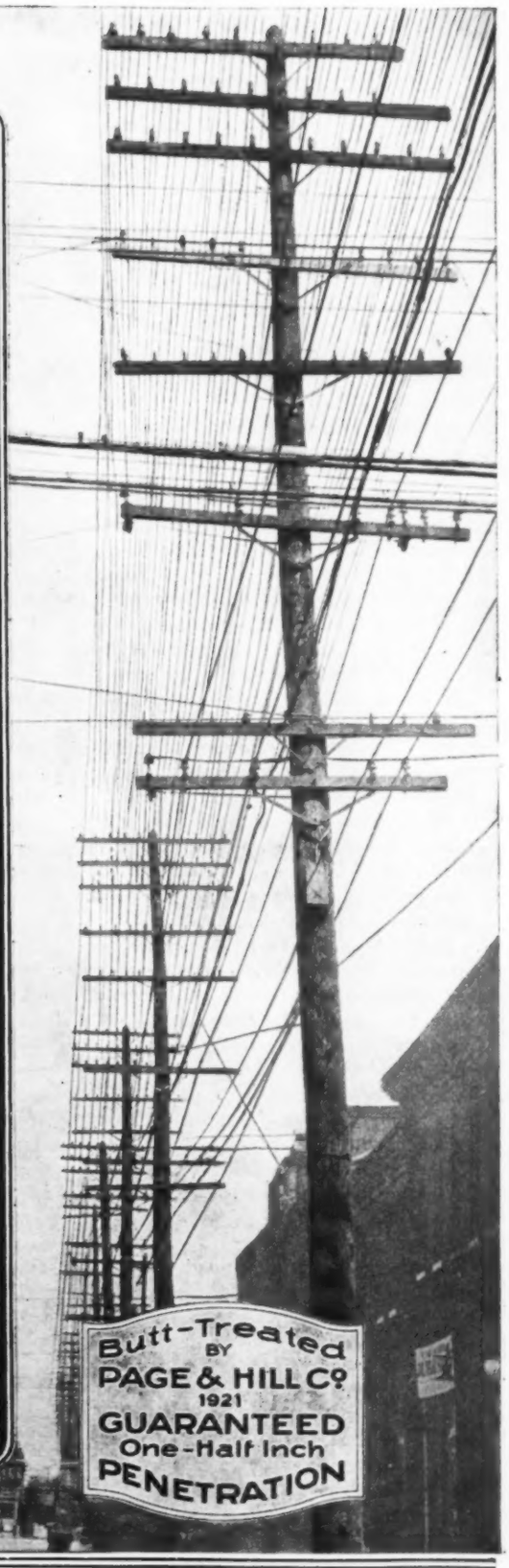
Furthermore, we agree by written guarantee to refund the Butt-Treating price on any pole that does not show the guaranteed half inch penetration.

TAKE NO CHANCES

Specify the *"P & H"* Guaranteed Penetration Process.

We can furnish, promptly, treated and untreated Northern White and Western Red Cedar Poles—any form of Butt-Treatment—and we are giving to pole-users the first Guaranteed Penetration Process ever offered in the pole industry—the *"P & H"*

Send for a copy of our interesting booklet.
"Butt-Treating Cedar Poles at the Page & Hill Plant"



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nishing telephone service, its salvage value becomes the junk value of the material—but if the item is available for use in any capacity in furnishing telephone service, its value when retired becomes its value as a part of the telephone property in which it is again placed in service.

Labor and incidental expense included in the original installation cost of any item of property required for furnishing telephone service are fully dissipated, however, when the item with which such labor and incidental costs are associated is retired from service.

REASONS FOR RETIREMENT OF ITEMS OF PROPERTY: The several items of property involved in furnishing telephone service may attain the end of the period of service value for a number of reasons some of which are as follows:

Inadequacy: The increase in the number of telephones served, unanticipated increases in the volume of traffic offered, and unanticipated developments in population of restricted areas, unanticipated but concrete demands which could not be provided for in constructing the original property without increasing the risk of making unjustifiably large investments for property that would not be immediately useful, require the retirement of existing items of property in advance of their physical deterioration.

Obsolescense: Items of property which can be replaced to economical advantage with property of new and improved design must be retired in order to obviate economic sacrifice and inefficiency.

Public Requirements: It becomes necessary to retire items of property which are otherwise and *for all other reasons* serviceable in order to conform with the requirements of municipalities, counties and other public authorities.

Physical Deterioration: Items of property wear out in service and must be replaced.

Of the causes affecting the retirement of items of telephone property, relatively the least important is physical deterioration.

It is a comparatively simple matter to assign to each item of telephone property classified as suggested in I, a definite service life and net salvage value based upon experience. Should it be found that the service life and salvage value of any given item of property has been incorrectly estimated then the proper adjustment, based upon experience, should be made on the service life and salvage value of that particular item.

By deducting the salvage value from the original cost plus the cost of removal and dividing the remainder by the period of the service life in years, the average annual provision necessary to offset depreciation may be determined for any given item of property. The sum of such individual average annual provisions necessary to offset depreciation for each of the items of property so classified will, obviously, be the estimated average annual provision that must be made to offset the total depreciation on the entire telephone property involved.

The ratio between the total average annual provision required to offset depreciation determined as outlined above, and the total cost of the telephone property in question is the *rate* applicable to the total property in question until such *rate* is modified by experience.

III. Bases Upon Which Depreciation Charges Should Be Accrued.

All telephone property, except land, is subject to depreciation. Charges to the depreciation reserve when a given item of property is retired from service should be based on the cost of the property retired plus the cost of removal less the salvage value.

In theory, the charges against operating to offset accruing depreciation should be based upon the cost of the total property, classified so that the varying periods of service life and the net salvage value may be weighted into a composite single average, and fixed so that a reserve shall have been created at the time of retirement of any given item of property sufficient to cover the cost of the property retired plus the cost of removal less the salvage value.

Such a reserve, based upon annual accretions from average annual or monthly charges to operating, will afford a means of amortizing that portion of the cost of furnishing service which consist of the continual dissipation of the investment throughout its service life.

IV. The Necessity for Accruals.

The installation of any item of telephone property unquestionably begins the expiration of the service life of that item and, unless the termination of the period of its service life is anticipated and reserves created that equal the cost plus the cost of removal less the salvage value at the time of retirement, then the investment originally made is continuously dissipated and the property is ultimately destroyed.

The provision, therefore, of a reserve in anticipation of the ultimate retirement of such items of property conserves the investment. Such a conservation of the investment is necessary, as any failure to provide for such a reserve would, in fact, dissipate the property of the investor without any compensation.

V. Relation of Maintenance Charges to Depreciation.

MAINTENANCE CHARGES: Maintenance charges may properly comprise expenditure necessary to keep the property in working condition without lengthening the period of its service life.

CHARGES FOR DEPRECIATION: Charges against operation as an offset to accruing depreciation are those made in order that the investment may be preserved intact. When property is retired from service and replacements are made, the cost of the replacements is charged to the fixed capital account and the provision to offset depreciation is not directly related in any way to the cost of replacement.

VI. The Manner in Which the Percentages of Depreciation Applicable to the Several Classes of Property Should Be Determined.

The amount of capital dissipated during the period of the service life of any given item of property is equal to the cost plus the cost of removal less the salvage value. Obviously the average annual amount so dissipated is the total amount dissipated divided by the number of years included in the period of service value. The length of the period of service value may only be determined by experience.

Telephone plants are subject to constant change. The wires used are comparatively fragile. The equipment is largely installed where it cannot be closely supervised. Property, otherwise serviceable, must be retired on account of obsolescence or inadequacy.

Experience should be brought to bear in determining the period of service life for each item of property. Based upon such experience, the average annual capital dissipation inherent in the item of property under consideration should be charged to operating as a provision to offset the total depreciation accruing on that item of property.

In any given telephone system, the total average annual provision that must be made on these bases for all of the several items of property is, obviously, the total provision that must be made to offset accruing depreciation on the entire system. The ratio between this total and the total cost of the property is the *rate* of *depreciation* for that property.

There is no other basis on which an average annual depreciation *rate* may be determined, as telephone plants vary widely in characteristics and where one plant may include a large proportion of property items having a longer period of service life, another plant may not comprise such items but may comprise a large proportion of property items having a short period of service life.

An illustration of this fact can be found in large metropolitan telephone systems where a great amount of underground cable is used and where the annual *rate* of depreciation will be lower. In contrast with a few such systems, there are many telephone systems in which the amount of underground cable is negligible and in which the circuits are carried in open iron wire, in which plants the *rate* of depreciation would be higher.

VII. Right of Way.

The item of cost included in telephone properties to cover the "right of way" is principally labor and traveling expense and does not include, to a very great de-

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TELEPHONE PLANTS 100% EQUIPPED
WITH
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FUSE CLIPS
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TO SERVICE
in
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CABLE TERMINALS
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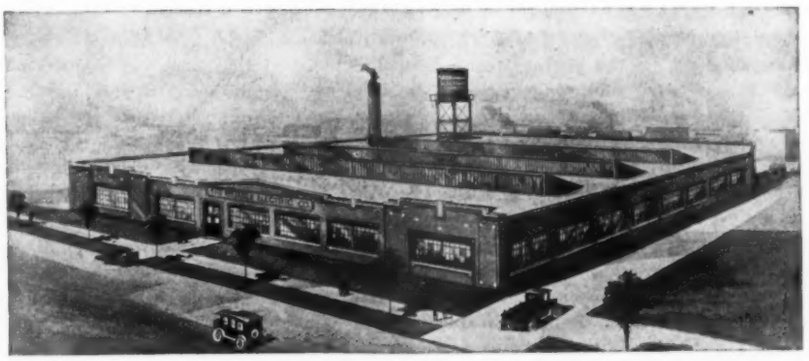

PROTECT YOUR TELEPHONE SERVICE AS WELL AS YOUR EMPLOYES AND PROPERTY

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gree, actual land or leaseholds. For a variety of reasons, some of which have to do with inadequacy, municipal requirements and physical wear and tear, a large part of the property included in the telephone system is moved at frequent intervals automatically invalidating the right of way pertaining to such items.

For this reason it is suggested that the same rate of depreciation be applied to the item for "right of way" in any given telephone system as is found to be the correct composite *rate* for all the other property involved.

Franchises, Patent Rights.

The items of property cost included under the account headings of "Franchises" and "Patent Rights" are each of definite life and should be amortized by charges to operation and credits to the reserve against depreciation in the same way as the several items of physical property.

Other Intangible Capital.

Insofar as the item of property included under the account heading "Other Intangible Capital" represents the excess cost of the property over the bare structural cost, it is suggested that a service period based upon the composite service period of the total physical property be assigned it in order that an average annual allowance to offset accruing depreciation in this item may be made.

"Interest During Construction."

Interest during construction is a part of the cost of physical property with which it is associated. It should be covered by an average annual allowance to offset accruing depreciation in the same way as other items of the property. The service period should be the same as the composite service period of the physical property items with which the cost items included in the account "Interest During Construction" are associated.

This result will be automatically attained if the items included in "Interest During Construction" are not segregated in a separate capital account but are distributed as costs among the several capital accounts which include the cost of the property items associated with them.

Conclusion.

It has not been thought best to embody any definite recommendations as to the duration of the periods of service value for the different plant classifications nor suggestions as to the salvage value of various items of telephone property, but an opportunity is solicited of presenting this data to the commission at its convenience and before any final ruling is made as to specific rates.

It is desired to emphasize as much as possible, however, the suggestion that a fixed rate cannot be found, nor can any range of rates be fixed which will be applicable to all telephone properties. Average rates can, however, be applied to the several classifications of telephone property given in I, and upon request such suggested rates for each property classification will be gladly furnished to the commission and an opportunity is solicited to furnish such suggested average rates.

Service Connections in Nebraska

Commission Issues Service-Connection Charge Schedule Based on Study of Rates—All Companies Must Make Charges Set Out Therein—Permission to Make Application for Modification Under Certain Conditions Given

The Nebraska State Railway Commission has evolved a service-connection charge schedule of its own, based on a study of rates submitted by the Northwestern Bell Telephone Co. and other organizations. It is estimated by Commissioner Browne, who wrote the order, that it will reduce the present revenues of the companies of that state 50 per cent.

While a considerable number of the smaller companies of Nebraska ignored the postmaster general's order during the war to put such a schedule into effect, the Nebraska commission makes it a part of its order that all companies must make the charges set out therein, giving permission to make application for modifications where peculiar local conditions justify.

For several years before the postmaster general tried out his theories of operating telephone companies, the Nebraska commission had favored some sort of an installation charge which would protect the company and the long-time subscribers against the heavy expense of the shifting telephone population. It had authorized a number of companies to collect $2. This was bottomed on its deterrent effects rather than upon a study of costs. These orders provided that the charge for installation should finally be absorbed by the company on the theory that the rental rate included the cost of an occasional move.

The commission now confesses that this theory has not been tenable for a number of years. Costs of operation mounted so rapidly that net earnings were rather uncertain, even when aided by the extra collections made for installations and moves, such collections never being refunded. Had the theory been followed, says Mr. Browne, the companies would have been in serious financial condition. In fact, he says, increases in rates would have been generally necessary beyond the points where they were set.

The investigation upon which the recent order is bottomed was made nearly two years ago and action has been purposely delayed, because close checking of the operations of companies showed that such revenues were essential to the maintenance of proper service and if additional rate increases were to be avoided. The commission says that condition is not yet entirely past, but prices of poles, common labor, operating automobiles and other elements have been reduced.

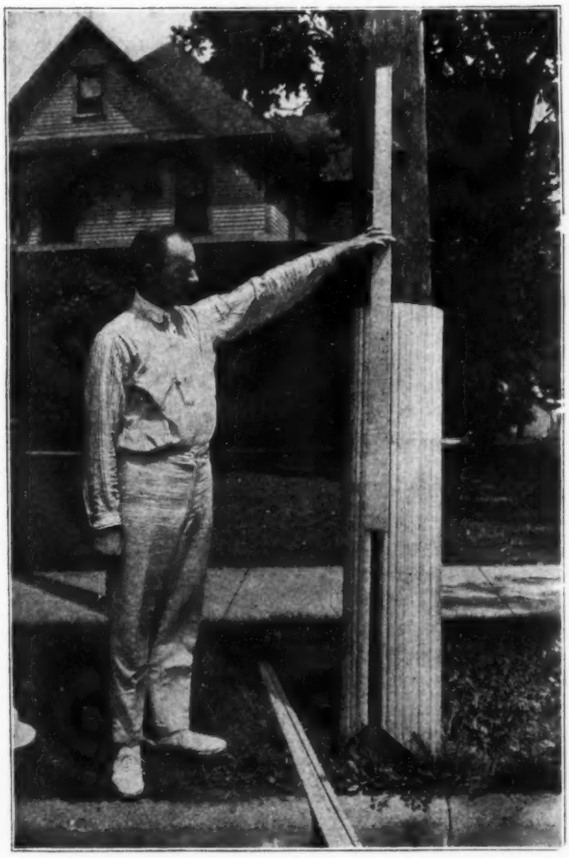
The commission sees signs that the "tenacious manufacturers of batteries, telephone instruments and switchboard equipment will, in the near future, be required by competitive conditions to make some reductions in prices." These signs, Mr. Browne says, have led the commission to take the matter up for decision. In part, the commission, in discussing the justice and necessity of these charges, says:

"In the telephone business the installation of a new instrument or the moving by a subscriber from one location to another is accompanied by peculiar expenses not realized by any other public utility.

When a new customer is acquired by an electric light company, or gas company, a meter is installed and the wiring or piping is furnished by the householder. A particular account is opened and the transaction of acquiring the new customer is ended. No one except the company and the customer is interested. The service is tapped on to a main channel over which the commodity is sent to divers other customers. When a customer moves from one location to another, the process at the central office simply involves the customer and the company.

With the telephone business, it is quite different. Everybody in the community is potentially interested in what every other subscriber does with his telephone. The new subscriber requires a complete little plant all his own, a miniature switchboard, a distribution system from his property to the central office and an individual instrument. In place of a few large trunks over which electric current is passed at high pressure, or large gas or water mains through which the service is furnished to a large number, each single-line telephone subscriber must be individually taken care of throughout the whole distance from central plant to residence. This required a greatly complicated record keeping.

There are still years of service in your decayed and broken poles



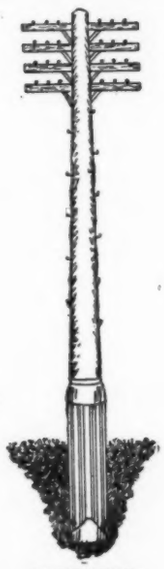
ONE of the largest items of expense for most telephone companies has been the replacing of broken, rotted or burned poles. But such replacements are no longer necessary.

The Pole Protector enables you to get years more service from poles that are decayed, burned or even broken off at the base. This appliance consists chiefly of a strong segmental sleeve, the sections of which are interlocked by longitudinal keys making, in effect, an integral sleeve. The segmental sleeve is assembled together around the pole above the ground and is then driven as a unitary structure into the ground by means of a removable driving collar that receives the impact of the driving.

On new poles the Pole Protector is more effective in prolonging life than any treatment.

Made of the celebrated ARMCO Galvanized Iron it is proof against rust and corrosion. Has undergone a successful five-year test in actual service.

The Pole Protector is a boon to all line companies. Effective and inexpensive—furnished in all sizes.



PATENTED
OCT. 27, 1917

Write us for prices and particulars

American Pole Protective Co.

FREEPORT, ILL.

Then, too, when John Smith installs a telephone, not only he and the company are interested, but everybody who may have occasion to talk to John Smith, and the telephone company must have such records as will enable it promptly to satisfy the demands of all those who desire to talk to John Smith. If John Smith moves from one location to another, the whole community is potentially interested in that fact, and the telephone company, serving that community in its peculiar and particular field, must stand ready to furnish the necessary information as to what telephone service John Smith now has. To do so in a large exchange requires very complicated cross-indexing, quickly available to each of the departments on which the public may have occasion to call by reason of the action of John Smith.

In years gone by, the expenses incident to the keeping of these records have been paid out of the general funds; that is, all subscribers paid a percentage of the total bill for this purpose, regardless of the amount of expense incurred by each of them in this keeping and changing of records. There was no particular segragation of expenses. The public was somewhat careless and that carelessness, added to the operating costs, made rates higher than would otherwise have been necessary. Temporary disconnects during vacation, or temporary removal of telephones in fits of pique, meant little to the subscriber because they cost that subscriber nothing. The whole body of subscribers paid the bill.

The necessity for some corrective measure was seen by the Nebraska commission when it authorized certain service connection charges. These charges were not for the purpose of paying segregated parts of the record keeping, but rather to put the brakes on whimsical actions on the part of subscribers that might be avoided without serious inconvenience to the subscribers, and if not avoided might be paid in part by those causing the expense. More careful consideration of corrective measures was brought about by the rapidly-mounting costs of operation.

No student of telephone finances in the last few years is unaware that these costs outstripped the increases in revenues either by advance in rates or by rates and larger and larger volume combined. It was necessary to perfect economies. Thus came into existence more complete service connection charges which would, in part, provide revenues to offset specific costs, the revenues to come from those causing the costs; in part, to produce economies by still further discouraging unnecessary expenses.

It has not been easy for the public to accommodate itself to the experience of paying service connection charges, largely because for almost two decades these services have been without cost. It would be easier to appreciate the service connection charges during the period of the war if it could be understood that had not these additional sources of revenue been presented, the rates for general service would have been necessarily so much higher than they have been.

A more important reason presented for service connection charges related to the labor necessary to remove equipment and the material lost to the company by reason of removals. The extent of these moves is startling.

In Omaha during the first six months of the one year studied, 4,605 telephones were installed. There was either cessation of use altogether or a move from the original location of these 4,605 new subscribers as follows: During the first three months 815 quit service or moved to another location; by the end of six months, 1,700; in nine months, 2,295; by the end of the year, 2,727; and at the end of two years 3,587 had either ceased being subscribers or had moved to other locations which involved definite and certain expense.

The Lincoln company, from a considerable study, found that the loss in outside and inside wiring, where telephones were ultimately removed from the premises, was $3.36 per telephone."

The commission says that not an inconsiderable factor in the consideration of this charge lies in the effort to deter short-time users from taking service. It says there is no question but that the short-time user should either be discouraged from taking telephone service or pay approximately what he costs the company. Unfortunately it cannot be told in advance whether the subscriber is short-time or not as he himself either does not know or will not tell.

The extremely short-time user cannot be charged an extra amount at the close of the period of service because there is no proper economical method of collecting it. Hence, the deterrent element must surely be one of the factors to consider in fixing charges for installation. At whatever figure these charges are placed, it amounts to merely localizing the production of revenue against certain subscribers who cost the company more, and relieving to just that extent the more permanent patrons.

The Bell company asked the commission to put into effect a system of graded charges, while the other companies asked for a flat basis. The commission says that its conclusion is that service connection charges must be continued permanently and on a graded basis.

It would appear proper that they be somewhat higher for business than for residence telephones, as the record shows that business service is more unstable than residence service. It would also appear that the rates should be higher in the cities where the turn-over is greatest and where the plants are most complicated, inasmuch as the greater the complications the greater the cost of keeping the records and of making the changes.

Inside moves, it says, are caused only by the subscriber, and no other subscriber is interested. Whatever cost is incurred is due to the convenience of the particular subscribers. It is the commission's opinion that a charge for the entire cost of an inside move, plus a reasonable overhead and profit, should be made against the subscriber asking for this inside move. It is recognized that this means extra bookkeeping; that the amount of the charge cannot be definitely determined in advance; and that it may cause many controversies, and for that reason it is opposed by many, if not all of the companies.

The commission recommends a rule placing against the subscriber causing the inside move the entire cost of that move, plus a reasonable profit. Telephone companies within the state will be permitted, however, to file rules for specific charges for classes of inside moves, which will constitute the proper schedule for such services unless specifically rejected by the commission. In case no such rules are filed, service on a cost plus basis will be

United States Telephone Development.

The extensive telephone development in the United States as compared with other countries on any basis of comparison may be traced to a number of causes, among which the most important are:

1. The greater readiness of the American public to adopt new ideas and practices.

2. The higher average per capita income in the United States.

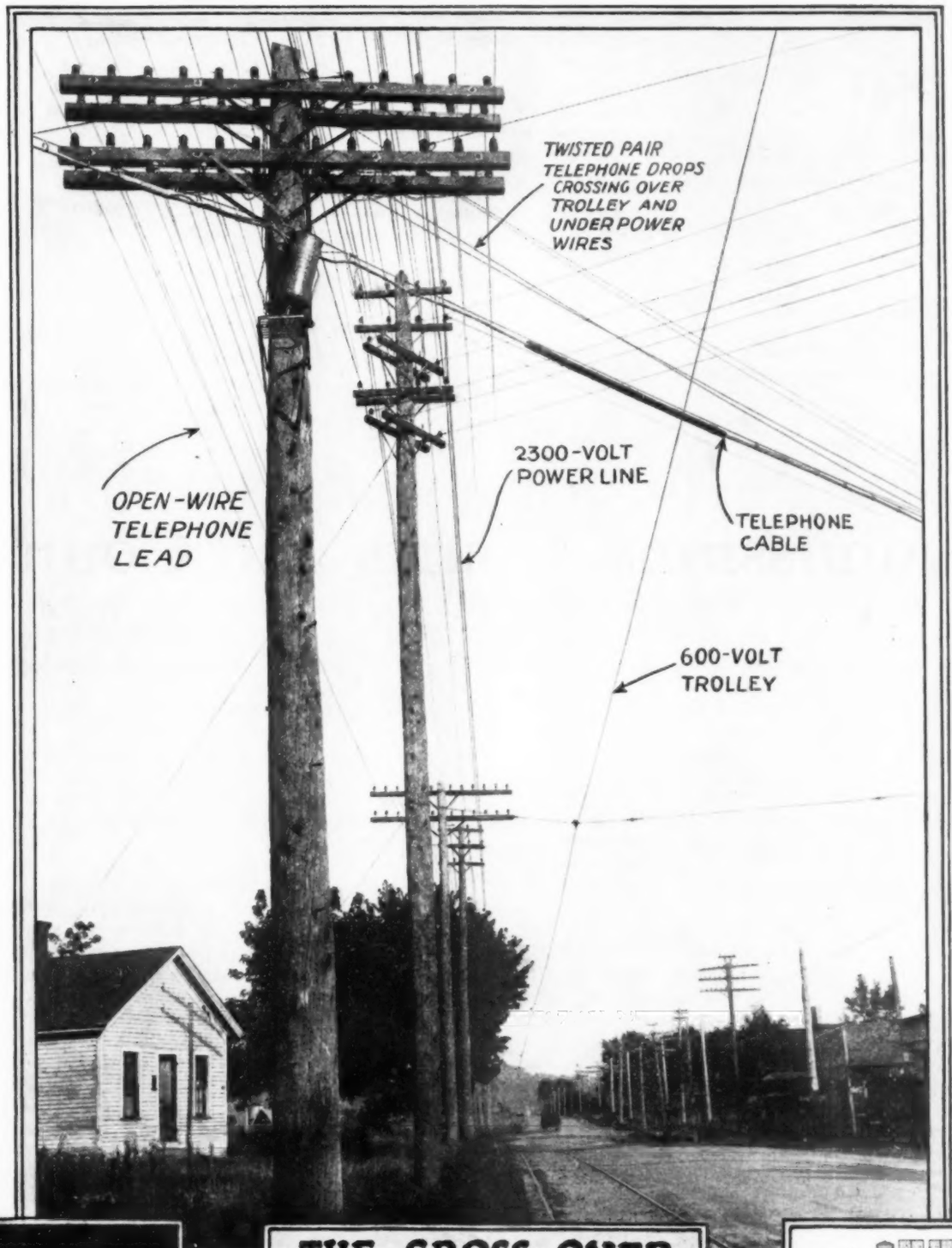
3. The demand of American business for time-saving devices of all kinds, which has firmly established the telephone as a business necessity, even in the small business establishment.

4. The reflection of business habits and customs on social habits.

5. The more intimate business and social relations between widely separated communities.

6. The initiative and aggresiveness of the American telephone industry, which directed the attention of the general public to the uses and value of the telephones; the readiness of the industry to devise and supply less expensive grades of service, and the readiness of investors to supply the necessary capital.

7. Competition in the industry.—U. S. Bureau of Standards in Circular No. 112, "Telephone Service."



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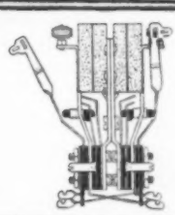
THE CROSS OVER

HAVE YOU A SIMILAR DANGEROUS CONDITION?



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Room 101, National Convention

the legal schedule. This action, the commission says, is not intended to cover the expenses incident to the move of the P. B. X. equipment, which shall in all cases be on a cost plus basis.

The complete schedule, effective December 1, is as follows:

SERVICE CONNECTION SCHEDULE.

Where necessary to install instruments, drop and wiring:

	Business.	Residence and rural.
Omaha	$5.00	$3.50
Lincoln	4.00	3.00
1,000 subscribers plus	3.00	2.00
600 to 1,000 subscribers	2.50	1.75
Less than 600 subscribers	2.00	1.50

Where drop and inside wiring is in place:

	Business.	Residence and rural.
Omaha	$3.50	$2.50
Lincoln	2.75	2.00
1,000 subscribers plus	2.50	1.50
600 to 1,000 subscribers	2.00	1.25
Less than 600 subscribers	1.50	1.00

Instrument and wiring in place, lapse of service:

Same as class next above, with option to subscriber to pay for lapse period and be considered a supersede or change of name.

Supersede or change of name—instrument and wiring in place and no lapse of service:

	Business.	Residence and rural.
Omaha	$1.00	$1.00
Lincoln	1.00	1.00
All other exchanges	None	None

Exchanges refer to separate plants and not to system.

Extension stations—instruments and wiring not in place, $1; otherwise no charge.

P. B. X.: Main station, same as trunk line rates; substations, instruments not in place, $1.

Inside moves: Cost of work plus reasonable profit, or in lieu thereof, companies may file fixed schedules of charges by classes of jobs required. P. B. X. switchboard moves at cost of move.

Changes in type of equipment at request of subscribers, $1; of P. B. X. switchboard, cost of change.

Automatic System for Bombay, India, Within Three Years.

The Bombay Telephone Co. proposes to install an automatic system within three years. The scheme provides for 15,000 lines, and the cost is estimated at £400,000, providing for the introduction of a full automatic plant in Bombay, India.

It appears that the government of India is prepared to extend the license of the telephone company for 20 years in the event of its introducing an automatic or a modern common battery system.

Commissions, Courts and Councils

Discussion and Rulings of State Bodies Having Supervision Over Telephone Companies—Decisions of Courts in Matters of Interest to Public Utilities and Actions of City Councils Relative to Franchise, Rates and Service

Minnesota Supreme Court Rules on Minimum Wage Order.

An opinion of the Minnesota Supreme Court in the case of George W. Allyn, of Madison Lake, Minn., who was prosecuted by the state for failure to pay the minimum wage to a girl in his employ was handed down October 14, reversing the decision of the municipal court of Mankato.

The action was first instituted in the municipal court of the city of Mankato. The state charged Allyn with having employed a minor of ordinary ability as a clerk in the mercantile business at a weekly wage of less than $10.25 at Madison Lake, contrary to an order of the minimum wage commission and against the form of the statute made and provided in such cases. The cause was tried to a jury and a verdict returned against the defendant. From an order denying his motion for a new trial, an appeal was taken.

Chapter 547 of the laws of 1913 created and established a commission known as the Minimum Wage Commission consisting of three persons of whom the commissioner of Labor was to be chairman, and the governor to appoint two others, one of whom was to be an employer of women and the third a woman who was to act as secretary. The statute provides for an investigation by the commission of wages paid to women and minors and the making of an order fixing a minimum wage.

Section 6 of this statute provides that "the commission shall then issue an order to be effective 30 days thereafter, making the wages thus determined the minimum wage in said occupation throughout the state. A copy of said order shall be mailed, so far as practicable, to each employer affected; and each such employer shall be required to post such a reasonable number of copies, as the commission may determine, in each building or other work place in which affected workers are employed. The original order shall be filed with the commissioner of labor.

On July 5, 1919, the commissioner issued order No. 10 fixing the minimum wage for women and minors of ordinary ability in any occupation working not to exceed 48 hours per week, at or in any place other than a city, village or borough having 5,000 or more inhabitants, in the sum of $10.25 per week, to take effect and be in force on and after August 5, 1919. On the same day the commission adopted another order, No. 11, which defines learners and apprentices, fixes a minimum wage for the first three months, a higher wage for the second three months and a still higher wage for the third three months and then attempts to provide that thereafter such a learner or apprentice shall be deemed a worker of ordinary ability.

At the trial, copies of the orders referred to were placed in evidence by the prosecution, but the court held that no proof as to any investigation or other acts of the commission was offered. There was no showing that such orders were ever published or copies thereof mailed to parties affected thereby. Allyn offered proof that he had never received copies of either of such orders nor heard of them either by mail or otherwise. These offers were objected to and excluded.

Without notice of such orders, the court held that the employer could hardly know of the wages established, much less post copies thereof in his place of business. "While the law presumes that public officials properly perform their official acts in connection with their duties," it said, "yet such presumption may be rebutted by competent proof. The presumption of due receipt of a letter may be rebutted by evidence that it was not in fact received. The proof should have been received."

The court held, furthermore, that the order when considered in connection with the statute amounted in effect to a penal law. "To enforce such an order without notice would be to subject every employer to prosecution though innocent of any intent to evade the law. Such was not the intent of the legislature.

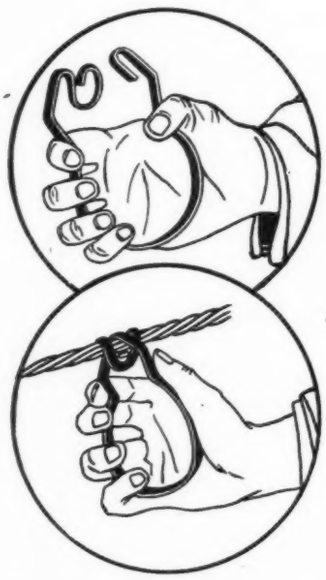
"We hold that under this statute the orders referred to do not become effective until 30 days after issue by the commission and the mailing of copies thereof, so far as practicable to the employers affected. To render the orders admissible in evidence, compliance with the provisions of section 6, must be affirmatively shown. Courts will not take judicial notice of such orders. It then becomes the duty of such employer to post copies thereof as determined by the commission. The statute is mandatory as to the mailing and posting of copies of such orders.

"The statute is silent as to the power of the commission to determine and define who shall be deemed workers of or-

Grips the Messenger Automatically

In cable installations considerable time is either saved or lost in putting up cable rings. This fundamental fact is responsible for the many changes in cable ring styles that have been made in recent years.

And it is this same fundamental fact that is responsible for the National One Hand Locking Cable Ring. The illustration at the left shows clearly how this ring automatically grips the messenger.



Note how one hand places this ring on the messenger and pressure action by the same hand clamps the ring. The clamp holds the messenger in such a vise-like grip that it positively cannot slip.

And it is easy to see that once this ring has gripped the messenger that the harder the pull the tighter the grip. Patented less than two years ago, there are already hundreds of thousands of National One Hand Locking Cable Rings in service.

Durability is assured by making them of high carbon wire galvanized by hot dip process, guaranteed to stand the Standard Four immersion test. Made in 2-, 2½-, 3-, and 3½-inch sizes.

The National Telephone Supply Co.

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dinary ability. It leaves those matters for the courts, especially in a criminal proceeding like this. It was therefore error on the part of the trial court to exclude the testimony bearing upon that phase of the case. For these reasons a new trial should be granted."

Accepts Franchise for Telephone Co. in Shelbyville, Ill.

Judge John McNutt, president of the Queen City & Shelby County Mutual Telephone Co. on October 19 filed a written acceptance of the franchise offer to his company by the city council of Shelbyville, Ill. The work of reconstructing the telephone system is scheduled for the near future.

Over-Rates Motion for Dismissal of Fort Wayne Case.

Judge A. B. Anderson, in the federal district court in Indianapolis, last week overruled the motion of the attorney general of the state and the city attorney of Fort Wayne for dismissal of the complaint of the Home Telephone & Telegraph Co., of Fort Wayne, against the Indiana Public Service Commission.

The telephone company is seeking to enjoin the commission from enforcing a recent order denying the company's petition for higher rates in Fort Wayne. The hearing on the case will be held at an early date.

$1 Telephone Rate Discontinued—$1.25 Now.

Authority to increase its rates for individual line residence and rural multiparty service from $1 to $1.25 per month was granted the Acton Telephone Co., of Acton, Minn., by the state railroad and warehouse commission on October 27. The new rates became effective November 1.

The Acton Company which was organized in 1912, serves approximately 178 subscribers in and adjacent to the village of Acton.

Rule Adopted for Notifying Public of Rate Increases.

In the future when a telephone company, or any public utility, in North Dakota asks the State Railroad Commission for an increase in rates or for permission to change its hours of service under the provision of Section 14, Chapter 192 of the Session Laws of 1919, it must file with such application a complete list of its subscribers with their postoffice addresses.

Section 14 of the utility act of North Dakota provides that rates filed with the commission and not suspended within 30 days may become effective and be the legal rates. In the past the commission has required that the company making the application for an increase notify each and every subscriber of the proposed changes. However, the commission has found that the notices issued by the companies have not been uniform and in many cases, have not indicated to the patrons that objections or protests could be filed. It therefore adopted the foregoing rule on October 22 as a means for notifying the public of any changes.

Wisconsin Company Issues Stock to Pay for Improvements.

On an order issued October 24, the Wisconsin Railroad Commission authorized the Bayfield Independent Telephone Co., of Bayfield, to issue 30 shares of its capital stock of the par value of $25 per share, making a total issue of $750 for the purpose of securing funds with which to pay indebtedness incurred for additions and extensions to its property and plant, and all for purposes properly chargeable to capital account.

Summary of Commission Rulings and Schedule of Hearings.

CALIFORNIA.

October 21: Application filed by the Willits Telephone & Telegraph Co. for authority to abandon 12 miles of line on Westport Road in the town of Westport, as there is only one subscriber on the line. It is proposed to serve the town of Westport by another line.

October 25: The Reedley Telephone Co. authorized to issue a six months' unsecured note for $4,000 to the First National Bank of Reedley and a $2,900 note of the same terms to the Reedley National Bank to renew notes now held by these institutions.

October 27: The Santa Monica Bay Home Telephone Co. authorized to sell $5,000 of its first mortgage 5 per cent bonds at not less than 70 and accrued interest at $12,500, 6 per cent note, and $15,000 of its preferred stock at not less than $85. The proceeds are to be used to purchase a building now leased by the company in Ocean Park.

ILLINOIS.

November 2: Hearing at Springfield on application of the Westfield-Kansas Telephone Co. for authority to increase its rates in Westfield and Kansas.

November 2: Hearing at Springfield in the matter of proposed advance in rates for telephone service in Brocton and Hume by the Hume Telephone Co.; objections and protest filed by Roy H. Cook, president of the village board of Brocton against the proposed raise.

November 3: Hearing at Springfield in the matter of citation order issued requiring the Henderson County Public Service Co., the Monmouth Public Service Co., the Stronghurst Telephone Co., and the Inter City Telephone Co. to show cause for inductive interference with telephone circuits of the Stronghurst Telephone Co.; motion filed by attorney for the Stronghurst company that the Inter City Telephone Co. be made a party to the proceeding.

November 3: Hearing at Springfield on application of the Mt. Olive Telephone & Electric Co. for authority to increase its rates for telephone service in Mt. Olive.

INDIANA.

October 18: Purchase of the Akers Telephone Co. by the Montgomery County Telephone Co. approved. Permission also given the Montgomery company to issue $40,000 in mortgage bonds at not less than par to cover a part of the purchase price and $5,000 to be expended for the improvement and extension of the service. $15,000 of the common stock authorized to be paid to Mary Akers as part of the purchase price.

October 18: The Home Telephone Co., of Wabash, authorized to sell $136,700 of its common stock, making an increase in the stock issue to $236,700.

MINNESOTA.

October 27: The Acton Telephone Co., of Acton; the Sacred Heart Telephone Co., of Sacred Heart; and the South Haven Telephone Co., of South Haven, granted permission to increase local and rural rates.

November 25: Hearing at Rochester on application of the Rochester Telephone Co., of Rochester, for authority to increase its rates for telephone service. Schedule of temporary rates now in effect, the continuance of which after November 1, 1921, are subject to further showing by the company, ordered continued, pending the determination of the foregoing application.

NEBRASKA.

October 26: In the matter of service connection charges, investigation of which was taken by this commission on its own motion, order issued establishing a graded system of charges, based upon the size of exchanges, and requiring all companies doing a commercial business to place them in effect, with permission to apply for modifications necessary because of peculiar local conditions.

October 27: Application of the Sutherland-Fairview company for permission to decrease residence and rural rates from $1.75 to $1.50 a month granted.

October 28: In the matter of the application of the Farmers' Union Telephone Company, of Winnetoon, for permission to reduce residence and rural rates from $1.50 to $1.25, held that the company may do voluntarily what the commission cannot under the law require them to do, namely to sacrifice dividends; order issued allowing new rates, with provision that $200 a month must be set aside for maintenance.

WISCONSIN.

October 24: The Boscobel Telephone Co., of Boscobel, authorized to issue 40 shares of its capital stock of the par value of $100 per share, for the purpose of bringing the total of its outstanding stock, bonds, notes and other indebtedness more nearly to an equality with the value of its property.

October 24: Permission granted the Bayfield Independent Telephone Co. to issue 30 shares of its capital stock of the par value of $25 per share to pay for additions and extensions to its property and plant.

October 24: The Elk Creek Telephone Co., of Elk Creek, authorized to increase its rates for telephone service from $4 per year to $12 per year per telephone.

October 27: Rates of the Morgan Telephone Co. increased from $1.25 to $2 gross, $1.75 net per month per telephone.

October 27: Local and rural rates of the Crandon Telephone Co., of Crandon, raised, effective as of November 1.

October 28: Wisconsin Telephone Co. given authority to increase rates at Stevens Point, Waukesha and Marinette Exchanges, effective November 1.

November 4: Hearing at Madison on application of the Harmony Telephone Co., of Peshtigo, and Harmony Corners, for authority to increase its rates for telephone service.—U-2589.

PEERLESS TESTING SETS

Unequalled for Accuracy, Durability and Appearance

Peerless Sets are made in a number of types for all conditions of service. Officially adopted and approved by the Postal Telephone and Telegraph Co., the Western Union Telegraph Co., and American T. & T. Co. and associated Bell telephone companies, and the largest Independent companies in the country.

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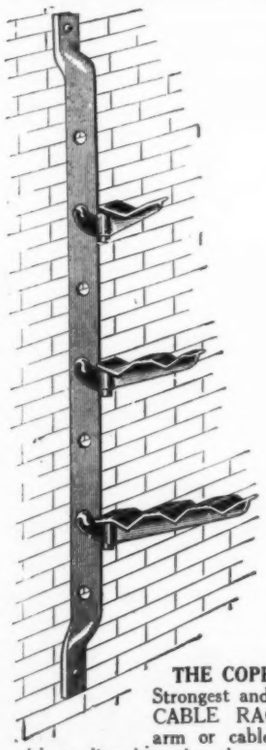

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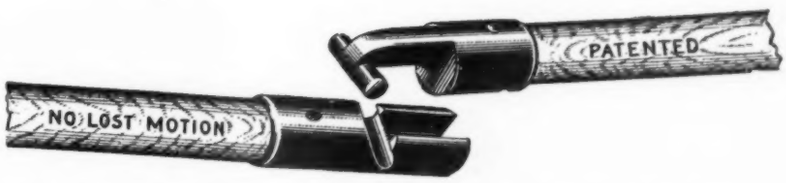

The instantaneous Coupling Rod. Undoubtedly the best on the market. Made of 1″ second growth seasoned Hickory, soaked in oil. Castings of malleable steel. Stock sizes 3 ft. and 4 ft. Prompt shipment guaranteed, as a large supply is always kept on hand.

THE COPE CABLE RACK
Strongest and Most Convenient CABLE RACK made. Any arm or cable can be removed without disturbing the others. Arms enter from side of upright with direct pressure against the edge of same and are securely locked when in place. Uprights made in any lengths and with as many holes as desired.

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Please tell the Advertiser you saw his Advertisement in TELEPHONY.

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Changes in Automatic Electric Co. —T. C. Thompson, Gen. Supt.

In few other industries are production methods necessarily so intricate and involved as in the engineering and manufacture of automatic telephone equipment; in few other industries is an experienced and time-proven executive personnel so essential. More formal training alone cannot develop the qualifications necessary for the efficient conduct of the production departments of this most complex business.

T. C. Thompson, who, on September 25 of this year was appointed general superintendent of The Automatic Electric Co., Chicago, possesses, besides unusual ability as an executive and engineer, those that only varied experience and continued study of the company, its product and its problems can bring. Beginning as factory helper early in 1901, Mr. Thompson has been actively engaged in almost every department of the business, both as subordinate and executive.

After one or two years at switch testing and assembling, Mr. Thompson, in 1903, was transferred to the installation department—probably the most practical and effective preliminary training medium for an executive of the company. For the next seven years he was engaged in installing automatic equipment in various plants throughout the country—Grand Rapids, St. Mary's, Dayton, Los Angeles, Portland and others.

Returning to the factory in 1910, he was made foreman of one of the switch testing and assembly departments. Later, with the formation of the operating department, he was transferred to this work; traveling from exchange to exchange studying operating methods and initiating improvements. In 1914 he was again called back to the factory and spent some

General Superintendent Thompson Has Had 20 Years' Association With Automatic Company.

years in installing new and improved manufacturing methods.

In 1917 Mr. Thompson was transferred to the sales department of Automatic Electric Co., and placed in charge of P. A. X. sales in the Philadelphia territory, later being appointed Eastern manager, which position he retained until his recent appointment as general superintendent.

With a native ability for organization and direction, combined with 20 years of concentrated effort and wide experience, Mr. Thompson is eminently fitted for the efficient performance of his new duties.

Succeeding Mr. Thompson, E. R. Neir, for many years superintendent of installation and operation, has been appointed factory manager.

Although Mr. Neir's efforts have been chiefly directed to the installation and operation of automatic equipment, he has by no means neglected the other departments of the business. Having given close personal supervision to the training of many of the present factory foremen and subordinates, he is as well acquainted with the personnel and problems of this branch of the business as with those of his former department.

Mr. Neir entered the Automatic Electric Co's. employ in 1903, and after the usual apprentice course in the factory, was transferred to the installation department, where after four years of this work he was placed in direct charge of the installation and operating departments. It is interesting to note that, until recently, practically every automatic cutover was made under the personal supervision of Mr. Neir.

H. P. Mahoney, who early this year was made assistant to Mr. Neir, has been appointed superintendent of installation and operation, with full and direct responsibility for this work.

Mr. Mahoney began work with the Automatic Electric Co. in 1904 and since that time has been engaged almost continuously in the installation and operation of automatic equipment.

After spending several years in installing and maintaining automatic exchanges in various parts of this country, Mr. Mahoney went to England where he spent several months in similar work for the Liverpool organization which was just beginning its activities along this line.

Since that time, he has supervised the installation of several of the larger installations in this country, including those at Elyria, Ohio, Norfolk, Va., and Philadelphia, Pa.

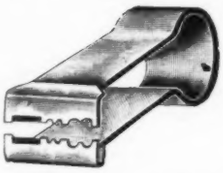
Factory Manager Neir Entered Shop of Automatic Company in 1903. He Is Expert on Installation Work.

American Pole Protective Co. for Strengthening Poles.

It is no longer necessary to replace old poles because they are decayed or broken at the ground line, or to reset or "stub them," according to the American Pole Protective Co. By the use of its iron pole protector, the line owners will not only effect a very great saving in the cost of maintenance of their lines, but it will enable them to furnish their patrons more

Superintendent of Installation Mahoney Started Automatic Installation Work Some 17 Years Ago.

Tools and Specialties



P. & G. Wire Skinner. A tool designed for stripping all difficult jobs, stripping ends of wire up to No. 4 inclusive.

This tool should be in the kit of every telephone and electrical worker.

Gem Cable and Wire Grip

A wire woven cable grip for handling lead or rubber covered insulated cable. Made to accommodate all sizes of cable; single eye, double eye and split double eye; lengths 24, 36 and 48 inches.

Anthony's "Sure-Grip" Steel Conduit Bender

Scientifically designed—permits sure grip without kinking and can be readily used in confined spaces. Made in three sizes, ½-inch, ¾-inch and 1-inch. Conduit workers' best helper.

Construction and Maintenance Tools

For Better and more Economical Construction
Reels—takeup and payout
Pike Poles
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Digging and tamping bars
Cant and carrying hooks
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In fact, we can furnish you any tools used for general construction work.

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combines the strength of steel with the conductivity and rust-resistance of copper. Write our nearest office for Bulletin 202.

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Pittsburgh, Pa.

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Keep Your Lines Working Regardless of Storms

You receive immunity from service interruptions as well as protection for your property when you install

ARGUS LIGHTNING ARRESTERS

They operate on a principle that effectually "jerks the teeth" of lightning. The arc of lightning discharge is broken up into a dozen or more little discharges, no one of which is of sufficient intensity to do any harm.

ARGUS TYPE "A-C" Arrester is equally efficient in protection against crosses with high tension circuits as it is against lightning.

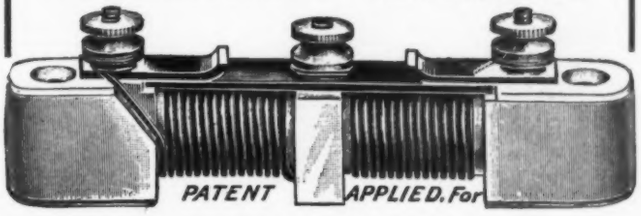
Two short plates above the ground plate and separated from it by .004 in. offer a safe protection against crosses with high tension lines of 500 to 1200 volts. The air-gap, once broken down by excessive voltage, will carry off in self-extinguishing arcs any currents which will not blow the line fuses.

Our Weatherproof Metal Case containing two Argus Arresters is durable and convenient for outdoor construction.

Let us send you Bulletin No. 33 on Line and Cable Protective Devices.

Foote, Pierson & Co., Inc.

160-162 Duane Street - NEW YORK CITY



efficient service, the company claims.

This pole protective device consists of a corrugated iron sleeve adapted for placing around a pole at the ground line. Where the two ends come together a metal key or wedge of the same length as the rest of the sleeve is driven in, thus firmly securing the appliance and holding it in place. The sleeves are made by the American Rolling Mill Co. out of its celebrated Armco brand of ingot iron. This metal has been in use for many years without any appreciable signs of deterioration.

Scientific tests of the pole appliance, as well as tests in actual use, have demonstrated its strength, long life and practicability in reinforcing the pole and protecting it from rot at the ground line, according to the manufacturers.

The appliance is made to fit poles of various sizes from six inches in diameter at the ground line up to the largest size pole in use. It is made of a gage of metal sufficiently heavy to stand the greatest possible strain required of the pole. It is also made in different lengths to meet the various requirements.

The keys are made of two gages heavier metal than the main sleeve in order to give it a greater lateral strength. The keys are tapered to take care of the difference in diameter of the pole above and below the ground. All keys, as well as the different size body sheets, are interchangeable so that two or more keys or sleeves can be used to fit on extra size poles where the right size appliance is not available.

In case of an odd size or an irregular pole, an emergency key is provided. It can be used in place of a larger key and will, the manufacturer states, in no way detract from the strength of the appliance. By carrying a few of these emergency keys, the linemen will not experience any size difficulty. By using one key with the taper end up and the other key with the taper end down, an appliance can be assembled that will fit a pole which is the same diameter below as above the ground.

On the six, seven and eight-inch appliances No. 20 gage metal is used for the body sheets and No. 18 gage for the keys. The company recommends a length of four feet for this size.

On the nine and ten-inch appliances No. 18 gage metal is used for the body sheets and No. 16 gage for the keys. A length of five feet is recommended for this size.

On all sizes from 11 to 18 inches No. 16 gage metal is used for the body sheets and No. 14 gage for the keys, and a length of five and one-half feet to six feet is recommended.

Sizes larger than 18 inches are made in proportion to the foregoing and according to specifications.

The appliance can be installed without removing the pole from the ground, or the wires, cross-arms, or other equipment from the pole, and the work can be done by one or two men in a very few minutes.

Practical experience has taught the company that the proper method of installing these appliances is to dig around the old pole with a spade or other tool to a depth of 18 or 20 inches—the exact depth is not material—and then assemble the sleeve around the pole at the ground line. This can be done either before or after the digging has been accomplished.

The appliance is then driven or forced into position, which should be approximately one-half its length in the ground and the other half above the ground line. In many cases the ground can be sufficiently opened around the pole with a long iron chisel to allow the sleeve to be driven into position without digging. After it has been placed in position, the ground is filled in around it and tamped solid.

Any kind of a flat piece of iron or hard wood may be used to hold on the edge of the appliance when driving. The wood or iron will receive the impact of the driving tool and prevent the edges of the appliance from becoming battered or turned over. A little battering, however, will not hurt the appliance as it only spoils the looks of the top. The company has what it calls driving tongs, each half being semi-circular, with a handle on each half. The back of the tong is put together by a hook on one-half and an eye on the other half and when assembled together, makes a very satisfactory tool for this purpose and will last indefinitely.

After the appliance has been assembled, a good roofing cement should be placed around the top of the appliance and between it and the pole to seal the space and keep out the rain. Some companies have preferred to fill the corrugations with dry sand, after having installed the appliance, and then place asphalt or some good grade of roofing cement around the top. This also makes a very satisfactory job.

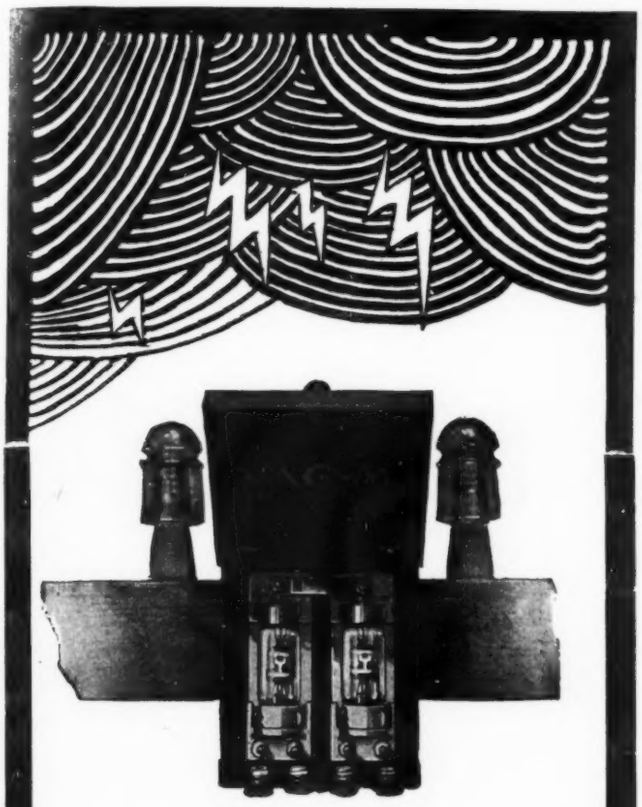
The difference between the cost of installing the appliance on any pole and the cost of installing a new pole is said to more than cover the cost of the appliance.

Further details regarding this pole protective device may be obtained from the American Pole Protective Co., State Bank Building, Freeport, Ill.

Reliable Electric Company's Plant

Quite some stock of parts for Reliable products, and every inch of space is just as light as day. Stockroom is conveniently located for receiving and delivering raw materials for manufacturing processes involved in the production of protective equipment.

This room has an acid-proof floor, and many pickling vats, melting and brazing furnaces, as well as cleaning and nickeling facilities. It is surprisingly clean, considering the class of work which is carried on—all essential to producing Reliable products.



SAFE!

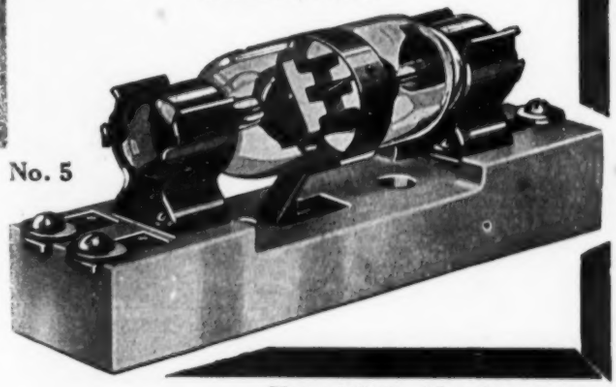
When a lightning storm is raging full blast, it is worth a lot to know that your lines and property are safe from the attacks of lightning. That security will be yours of you install

VAC-M ARRESTERS in Metal Containers

The arresters give absolute protection against lightning, sneak currents, static, etc. They are made on the vacuum principle which is the most dependable for telephone protection.

VAC-M METAL CONTAINERS enable you to easily and safely mount the arresters on cross arms, poles, pole tops and buildings. These containers are proof against time, weather and missiles. They make your protection "doubly sure."

The National Electric Specialty Co.
TOLEDO, OHIO



No. 5

DELTA
TELEPHONE BATTERIES

They are specially made for telephone use, and are conspicuously efficient. Delta Telephone Batteries render better service—are better batteries.

Their great recuperative power gives excellent transmission, long and clear conversations.

There is no higher grade or better Telephony Battery than DELTA.

Let us supply your needs NOW.

Delta Electric Company

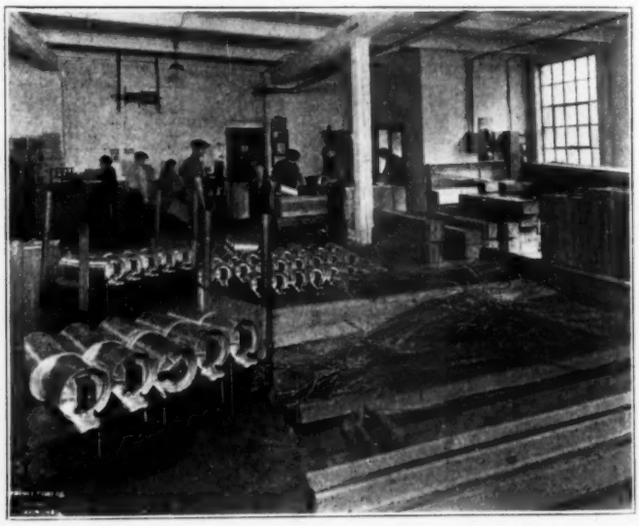
MANUFACTURERS OF THE WORLD FAMOUS **DELTA PRODUCTS**

280 DELTA BLOCK
MARION, IND., U.S.A

Many of the girls in this section have been with the Reliable Electric Co. since it began business in 1909, on South Jefferson Street, Chicago. They like their new daylight quarters and the straight-line production on fuses and telephone protectors, which entirely eliminates all unnecessary handling of the parts.

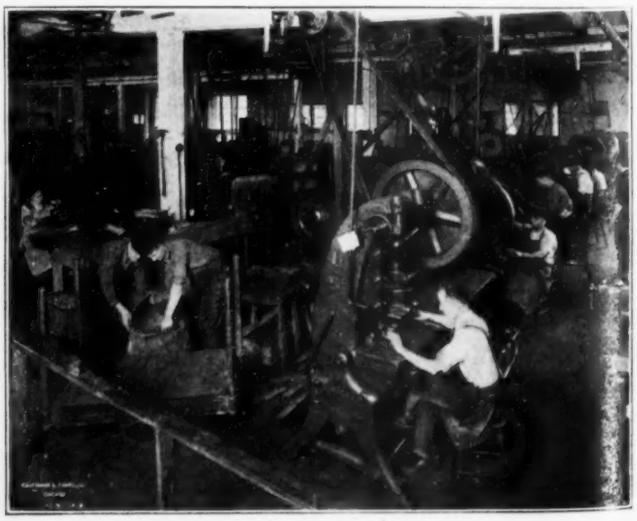
The office force is really as contented as they appear. Each one has something definite to accomplish each day. The office is in convenient touch with the factory and each one's duties dovetail with factory activities just enough to make life interesting. All orders are given personal attention from receival to shipment.

Two lines of punch presses in the factory of the Reliable Electric Co., Chicago, with safety guards, several with automatic feeds, produce a surprisingly large quantity of sleeves and other parts for telephone protective apparatus of all kinds.



The packing and shipping goes merrily on. Reliable products enjoy a continuously-increasing demand. In the immediate foreground, inspectors are keeping Reliable sleeves and other parts up to the high standard of exacting specification requirements.

It keeps the cable terminal section humping to keep up with orders for cable terminals. The four-point fuse clip which bites into the fuse end and the self-cleaning sawtooth P495 Discharge Block are features which attract the orders for cable terminals.



The light is excellent for drilling and tool-room work. Tools and dies not in actual use are kept in a fireproof vault to insure continuous service to customers. Machines of many kinds make the plant of the Reliable Electric Co. independent of outside suppliers.

TELEPHONE RATES and VALUES

The Answer to Every Valuation Question is Found in This Book

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"TELEPHONE RATES and VALUES" will enable you to solve your valuation problems at a minimum cost.

The author, Chas. W. McKay, is one of the leading telephone experts and appraisal men in the country—widely known as the author of numerous articles on every phase of the subject. In this volume Mr. McKay has formulated the results of his long and varied experience.

This practical book was written to help you deal with actual operating conditions. The entire subject of telephone valuation is discussed in detail, in plain, unvarnished English. It includes an abundance of timely suggestions and numerous short and easily applied methods are suggested.

"TELEPHONE RATES and VALUES" is especially useful when preparing to present your rate case to the State Public Service Commission. In many instances it will enable the telephone company to dispense with the services of a high-priced expert. In any case it will save work and money.

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CHAPMAN ARRESTERS

For TELEPHONE and TELEGRAPH LINES

The Chapman Lightning Arrester contains no pet theories to be exploded by the first storm. Just a delightful combination of common sense and experience put up in a substantial package which improves with age.

Installed at intervals along a line, they form natural spillways for lightning and static disturbances and are as permanent as the pole line.

In service from the Yukon to the Andes, from Tidewater to the Rockies.

Manufactured by
MINNESOTA ELECTRIC CO.
Minneapolis, Minn.

CONDENSERS

Mansbridge Type Condensers are Self-Sealing and cannot be internally short-circuited. If one is broken down by a lightning or high-tension discharge, or by mechanical damage, it automatically and instantaneously seals up, this being the unique and characteristic property of the metallized paper.

You can drive a pin right through a Mansbridge Condenser and the capacity and insulation will still be O. K.! Sounds impossible, but it's solid fact!

Complete Satisfaction

That's the reason why the Mansbridge Condenser has made good.

Mansbridge Condensers are More Reliable, Lighter, Smaller and no more Costly than those of the old fashioned solid foil type.

They are made under license by Western Electric Company, Ericsson Mfg. Co., Electric Specialty Co., Stromberg-Carlson Co., American Electric Co., and by numerous other licensees all over the world.

Insist upon having MANSBRIDGE CONDENSERS.

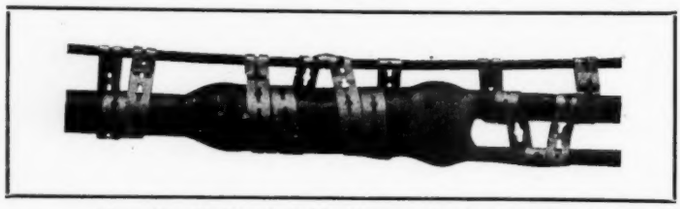
For full particulars and for terms of manufacturing license in U. S. A. and Canada apply:

G. F. MANSBRIDGE
Mount House, New Barnet, England

"There Are Reasons" for Using the National Cable Hanger.

"It's a real cable hanger," says the National Pipe & Cable Hanger Co., its manufacturer. And it gives ten reasons backing up its claim as to its product.

First, the company holds that the National is a practical cable hanger. Also that it is adjustable to fit any size cable, no tools are needed to install it, and it will safely hang any size cable. Furthermore, it combines strength, endurance and a neat appearance as well as simplicity and efficiency. The National is put up



How the National Cable Hanger Looks Installed.

in compact rolls convenient for carriage. It is said to save money in its first cost and save time—hence money— in installation. It is of zinc non-corrosive, and is made to order in any size.

John G. Kelley and J. B. Heiser of the National organization will personally attend the National telephone convention in Chicago, November 15-18, and have an exhibit space at the Hotel Sherman. Here they will demonstrate the practical application of the National cable hanger.

If there are any telephone companies that are interested but will be unable to attend the convention, samples sufficient for practical test will be sent by the National Pipe & Cable Hanger Co., 137 E. 43d St., New York City.

Liebman Prize for Year Awarded Telephone Engineer.

The Morris Liebman prize, the cash award made each year by the Institute of Radio Engineers to that member of the institute who is considered to have made the most important contribution to radio art during the preceding 12 months, has just been awarded to R. H. Heising of the engineering laboratory of the Western Electric Co. "for his analysis on vacuum tube action and his research work on modulation systems."

In commenting upon the award, Dr. F. B. Jewett, vice-president and chief engineer of the Western Electric Co., said, "Mr. Heising has long been a member of the research department and for the last five or six years has specialized almost entirely on radio telephone matters. There is no one in our engineering department who has individually contributed more to the success of our various undertakings in the radio field since 1914 than Mr. Heising, and the action of the Institute of Radio Engineers is a just tribute."

Soon after he entered the radio research field in 1915, Mr. Heising was connected with the Montauk-Wilmington Washington wireless experiments and later the Paris-Arlington tests. During the war he was engaged in the development of circuits for airplane and submarine chaser wireless sets. Recently, his studies have been devoted to radio systems for extending service to locations which cannot be reached by wire.

Indiana Bell Telephone Co. Has Large Deficit for 9 Months.

The board of directors of the Indiana Bell Telephone Co. has authorized the expenditure of $732,000, of which $505,000 will be used in combining the telephone systems in Indianapolis. Including this appropriation, the total appropriations for the nine months of the year amount to $3,090,000.

The financial statement showed a corporate deficit of $1,773,523.84, the total assets being $31,175,762.11, and the total liabilities $3,949,285.95. For the first nine months of 1921 the total revenue was $5,196,287.10, the total expenses, $5,197,800.08, leaving a deficit of $1,412.98.

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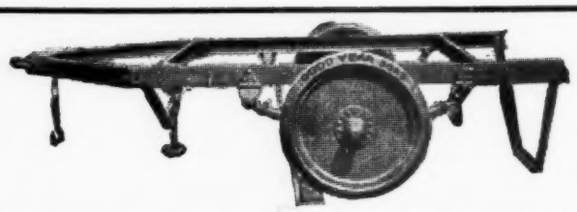

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These trailers are brand new, and have never been used. The oversized solid rubber Goodyear tires are worth more than $90. The wheels, tires, springs and axles would cost over $350 alone.

SPECIFICATIONS

Wheels: Budd, double disc steel wheels.
Bearings: Timken roller bearings.
Axles: Chrome Vanadium steel axles. 1¾"x2½".
Chassis: Length over all—12¾ ft. Length of body space—9 ft., 3 inches. Width of body space—4 ft. 3 inches. (Springs can be overslung and body width increased.
Frame: Heavy channel iron frame, 5"x1¾".
Springs: Semi-elliptic, 60"x3" brass brushed, 11-leaf, underslung, giving a low center of gravity.
Capacity: 3000 lbs.; overload capacity, 50%.
Tires: 36x5, Goodyear, Goodrich and Firestone; solid rubber.
Color: Army olive drab.
Equipment: Heavy drop screw jack attached to frame for stabilizing in horizontal position when not in use. Heavy angle iron nonadjustable V-shaped brace on rear which can be dropped for stabilizing if needed. These two stabilizers fold toward the frame and are supported by chains attached to frame, when not in use. Also two anchor blocks on chains attached to frame used for blocking wheels. Each trailer is equipped with two mud guards.

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